Engineering a Sustainable Future

EPA Region 1 RAC2 Contract No. EP-S1-06-03

June 9, 2011
Nobis Project No. 80018

Via Electronic Submittal

U.S. Environmental Protection Agency, Region 1
Attention: Ms. Almerinda Silva, Task Order Project Officer
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3919

Subject: Retransmittal of the Final Human Health Risk Assessment
Scovill Industrial Landfill Superfund Site, Waterbury, Connecticut
Remedial Investigation/Feasibility Study
EPA Task Order No. 0018-RI-CO-017F

Dear Ms. Silva:

Enclosed please find an updated copy of the Final Human Health Risk Assessment for the Scovill Industrial Landfill Superfund Site with the corrected Appendix A link and sentence replacement suggested by Margaret McDonough.

Should you have any questions or comments, please contact me at (978) 703-6006, or at ballen@nobiseng.com.

Sincerely,

NOBIS ENGINEERING, INC.

Boyd Allen III, P.G.
Senior Project Manager

Enclosure

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Human Health Risk Assessment

Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Remedial Investigation / Feasibility Study
EPA Task Order No. 0018-RI-CO-017F

REMEDIAL ACTION CONTRACT
No. EP-S1-06-03

FOR

US Environmental Protection Agency
Region 1

BY

Nobis Engineering, Inc.

Nobis Project No. 80018

June 2011

U.S. Environmental Protection Agency

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Boyd Allen III, P.G.
Senior Project Manager

Cynthia L. Woods
Senior Risk Assessor (Avatar)

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ACRONYMS AND ABBREVIATIONS

2,3,7,8-TCDD	2,3,7,8-tetrachloro-dibenzo-p-dioxin
ADAF	Age-Dependent Adjustment Factor
ADC	Average Daily Concentrations
ADD	Average Daily Dose
ALM	Adult Lead Model
ARAR	Applicable or Relevant and Appropriate Regulation
AT	Averaging Time
atm-m^3/mol	atmospheres per mole per cubic meter
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	below ground surface
BCA	Bias – Corrected Accelerated
CADD	Chronic Average Daily Dose
CLT	Central Limit Theorem
cm^2	square centimeters
cm^3	cubic centimeters
cm/hr	centimeters per hour
Company	Scovill Manufacturing Company
COPC	Chemical of Potential Concern
CS	Exposure concentration for soil
CSF	Cancer Slope Factors
CT	Connecticut
CTDEP	Connecticut Department of Environmental Protection
CTE	Central Tendency Exposure
DABS	Dermal Absorption Factors
DAD	Dermally Absorbed Dose
DA_{event}	Absorbed Dose per Event
ED	Exposure Duration
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentration
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HI	Hazard Index

ACRONYMS AND ABBREVIATIONS (CONT.)

HQ	Hazard Quotient
hr	hour
hr/day	hours per day
hr/event	hours per event
IEUBK	Integrated Exposure Uptake and Biokinetic
ILCR	Incremental Lifetime Cancer Risk
IRIS	Integrated Risk Information System
Kg	kilogram
Kg/mg	kilogram per milligram
KM	Kaplan-Meier
Kp	Permeability Coefficient
L	liter
LADD	Lifetime Average Daily Dose
LOAEL	Lowest-Observed-Adverse-Effect-Level
MCL	Maximum Contaminant Level
m^3/day	cubic meters per day
m^3/hr	cubic meters per hour
m^3/Kg	cubic meters per kilogram
mg	milligrams
mg/cm^2	milligrams per square centimeter
mg/cm^2-event	milligrams per square centimeter per event
mg/day	milligrams per day
mg/Kg	milligrams per kilogram
mg/Kg-day	milligrams per kilogram per day
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
MRL	Minimum Risk Levels
MVUE	Minimum Variance Un-biased Estimators
NCEA	National Center for Environmental Assessment
NHANES	National Health and Nutrition Examination Survey
Nobis	Nobis Engineering, Inc.
NOAEL	No-Observed-Adverse-Effect-Level

ACRONYMS AND ABBREVIATIONS (CONT.)

OABS	Oral Absorption Factors
OSRTI	Office of Superfund Remediation and Technology Innovation
OSWER	Office of Solid Waste and Emergency Response
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PEF	Particulate Emissions Factor
PPRTV	Provisional Peer Reviewed Toxicity Value
PRG	Preliminary Remediation Goal
RAGS HHEM	Risk Assessment Guidance for Superfund, Human Health Evaluation Manual
RBC	Risk-Based Concentration
REL	Reference Exposure Levels
RfC	Reference Concentration
RfD	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
RSL	Regional Screening Levels
RSR	Remediation Standard Regulations
Site	Scovill Industrial Landfill Superfund Site
SQL	Sample Quantitation Limit
SSAF	Soil-to-Skin Adherence Factor
START	Superfund Technical Assessment and Response Team
SVOC	semivolatile organic compound
TCE	trichloroethylene
TEF	Toxicity Equivalent Factor
TEQ	Toxicity Equivalent
TRW	Technical Review Work Group for Lead
UCL	95 percent upper confidence limit on the mean
URF	Unit Risk Factor
VOC	Volatile Organic Compound
µg	micrograms
µg/dL	micrograms per deciliter

ACRONYMS AND ABBREVIATIONS (CONT.)

µg/Kg	micrograms per kilogram
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
µg/mg	micrograms per milligram

1.0 BASELINE HUMAN HEALTH RISK ASSESSMENT

This Human Health Risk Assessment (HHRA) of the Scovill Industrial Landfill Site (the Site), in the City of Waterbury, Connecticut was prepared by Nobis Engineering, Inc. (Nobis) for the United States Environmental Protection Agency (EPA) under contract No. EP-S1-06-03, Task Order No. 0018-RI-CO-017F. This report presents a description of the risk assessment methods employed for the Site, as well as a summary of the results. The objective of the baseline HHRA is to estimate potential current and future human health risks from the presence of contamination in the soil, groundwater, sediment, and surface water in support of the Remedial Investigation Report (RI) and to provide the basis for determining appropriate remedial measures (if applicable) for these media as part of a feasibility study.

The HHRA evaluates non-cancer health hazards, cancer risks, and lead exposures through quantitative assessments. The potential for non-carcinogenic health effects is assessed by comparing an exposure estimate (dose) to a Reference Dose (RfD). Ratios of the intake dose to the RfD below 1.0 indicate that adverse non-carcinogenic effects are unlikely. Risks attributable to exposure to chemical carcinogens are estimated as the probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. Risks below 1×10^{-6} (or a risk less than 1 in 1 million) are generally considered to be acceptable by the EPA, and risks greater than 1×10^{-4} (1 in 10,000) are generally considered to be unacceptable. Estimations of blood lead concentrations are used to evaluate potential adverse health effects from lead exposures. Blood lead levels greater than 10 micrograms per deciliter (µg/dL) are considered to be a "concern." EPA's stated goal for lead is that individuals exposed would have no more than a 5 percent probability of exceeding the level of concern of 10 µg/dL.

The study area consisted of the entire 25-acre parcel formerly owned by Scovill Manufacturing Company (Company), adjacent properties, and off-site locations. Upon review of historical information, aerial photography, and Site topography, the adjacent properties and some peripheral areas of the Scovill-owned parcel were determined to be beyond the limits of Scovill-associated landfilling activity, which were used to define the Site. The Site, an approximately 20-acre parcel of land, consisting of the limits of landfilling activity on an approximately 25-acre property that was formerly owned by the Company, is depicted in Figure 1-1. Sampling was conducted both within the Site boundary and outside the Site boundary during RI activities.

The Site was used by the Company as a landfill from 1919 until the mid-1970s for disposal of ash, cinder, demolition debris, and other wastes generated by the nearby Company facility. The limit of landfilling activity is shown on Figure 1-1. Filling at the Site commenced along Meriden Road and progressed northward. Once filling was completed in the southeastern portion of the Site, the Company subdivided the property and sold it to developers. As additional areas were filled, those portions of the property were subdivided and also were sold to developers. By the mid-1990s, approximately 18 of the 25 acres, including approximately 16 acres within the limits of landfilling activity, had been developed.

The remaining undeveloped 7-acre parcel, including approximately 4 acres within the limits of landfilling activity, was in the initial stages of development by Calabrese Construction, Inc. when industrial waste was discovered leading to its designation as a Superfund Site on the National Priorities List. In the spring of 1998, polychlorinated biphenyl (PCB) contaminated soil was removed by the Connecticut Department of Environmental Protection (CTDEP). The area was temporarily capped with 1 foot of topsoil and hydro-seeded. After the installation of the temporary cap, 3 of the 4 acres of the parcel within the limits of landfilling activity were fenced and posted.

For purposes of the RI and HHRA exposure assessment, the Site was originally divided into parcels and risk areas. The 16-acre developed parcel, consisting of two- and three-story residential structures (apartment buildings) and small commercial buildings that include a landscaping firm, child daycare facility, elderly housing, social club, department store, cab service, medical office, car repair shop, and a shopping mall (East Gate Shopping Plaza), is referred to as the Scovill parcel or Parcel A. The 4-acre undeveloped parcel is referred to as the Calabrese parcel or Parcel B, including the fenced cap area and unfenced undeveloped open space within the limits of the landfilling activity. It is likely that future uses of properties within Parcel A will remain unchanged. The foreseeable future uses of Parcel B include residential, commercial, and open space. For consideration of soil exposures, the Site was further divided into 10 risk areas based on current land use and potential exposures. Risk areas are listed on Table 1-1 and shown on Figure 1-1. Risk area numbering was developed for the RI investigation. The areas currently included in this document are those that are defined as being within the Site boundary. Prior to establishment of the Site boundary based on the limits of landfilling activity, select adjacent properties and peripheral areas of the Scovill-owned

property outside the Site boundary were sampled; however, these areas are not included in the HHRA.

Section 2.0 provides an overview of the risk assessment process. Sections 3.0 through 8.0 detail the methodology and results of the HHRA. Appendices A through K present supporting materials for the HHRA. The risk assessment follows guidance from the EPA (EPA, 1989a and 1991a), including regional EPA guidance documents (EPA, 1994a, 1995, 1996a, and 1999) and specific direction from EPA Region I staff. Tables documenting the Site HHRA were prepared following the standard format in accordance with *Risk Assessment Guidance for Superfund, Human Health Evaluation Manual (RAGS HHEM) Part D* (EPA, 2001). These tables are presented in Appendix A.

2.0 OVERVIEW OF RISK ASSESSMENT PROCESS

A risk assessment provides the framework for developing information necessary to determine the need for remediating and developing potential remedial alternatives for a site. A baseline HHRA consists of five major components, as follows:

- Data evaluation and identification of chemicals of potential concern (COPCs),
- Exposure assessment,
- Toxicity assessment,
- Risk characterization, and
- Characterization of uncertainty in the risk estimates.

To assess potential public health risks, four major aspects of chemical contamination and exposure must be considered: contaminants with toxic characteristics must be found in environmental media; contaminants must be released by either natural processes or by human action; potential exposure points must exist either at the source or via migration pathways if exposure occurs at a remote location other than the source; and human receptors must have the potential for exposure. Risk is a function of both toxicity and exposure. If any one of the requirements listed above is absent for a specific site, the exposure pathway is regarded as incomplete and no potential risks will be considered for human receptors.

The data evaluation component of the HHRA is primarily concerned with selecting COPCs and calculating exposure point concentrations (EPCs). Both current and historical study area data are considered in developing a list of COPCs. The media/area-specific data are analyzed and COPCs are selected that are representative of the type of expected potential human health exposure. The EPCs provide the chemical input for each of the exposure pathways. A discussion of the data evaluation process and site-specific issues is contained in Section 3.0.

The exposure assessment identifies potential human exposure pathways. Exposure routes are identified by medium (i.e., soil, sediment, surface water, and groundwater), based on information on study area chemical concentrations, chemical release mechanisms, human activity patterns, and other pertinent information, to develop a conceptual site model. A discussion of the exposure assessment is contained in Section 4.0. A summary of the potentially significant exposures identified for quantitative evaluation is provided in Table 2-1 (the same table is also included in Appendix A as Table A-1).

The toxicity assessment presents the available human health criteria for all the selected COPCs. This assessment is contained in Section 5.0. A discussion of health effects and dose-response parameters, such as RfDs, Reference Concentrations (RfCs), Cancer Slope Factors (CSFs), and Unit Risk Factors (URFs), is presented.

The risk characterization section (Section 6.0) describes how the estimated intakes are combined with the toxicity information to estimate risks. Uncertainties associated with the risk assessment process are discussed qualitatively in Section 7.0. Section 8.0 summarizes the HHRA for the Site.

3.0 DATA EVALUATION

Data evaluation is a site-specific task that uses a variety of information to determine which of the detected chemicals in each medium are most likely to present a risk to potential receptors based on toxicity and detected concentrations. This section presents the approaches for identification of COPCs, distributional analysis of the data, and EPCs.

The end result of this qualitative selection process is a list of COPCs and representative EPCs. EPCs are defined as the contaminant concentrations at the point of exposure. The

methodology used to identify COPCs for this HHRA is provided in Section 3.1. Section 3.2 presents the identified COPCs for each medium. The methodologies used to determine EPCs for the selected COPCs are presented in Section 3.3.

The media of human health concern selected for the Site are as follows:

- Surface Soil,
- Aggregate Soil,
- Sediment,
- Surface Water,
- Groundwater, and
- Indoor Air.

Soil data were divided by depth (surface soil and aggregate soil). Surface soil data are used to evaluate risks from current and future exposures to soils from activities that do not involve disturbances of deeper soils. Surface soil samples were collected from depths of 0 to 2 feet below ground surface (bgs) and are included in the HHRA evaluation of current residents, recreational visitors, groundskeepers, industrial/commercial workers, day care children, and trespassers at the Site and future residents and industrial commercial workers at locations where future use may change without re-mixing of surface and subsurface soils. The aggregate soil data are used for evaluation of excavation exposures during construction work and a hypothetical future scenario where soil disturbance during construction activities could result in the re-mixing and re-distribution of subsurface soils to the ground surface, allowing potential human exposures to currently deeper soil contaminants. Aggregate soil samples, were collected from depths of 0 to 10 feet bgs and are included in the HHRA evaluation of potential future residents, future groundskeepers, future industrial/commercial workers, and current or future construction/utility workers. It is assumed that soil below 10 feet will not be disturbed during construction. Both surface and aggregate soil data were further divided into subsets by risk area for purposes of evaluating soil exposures at each of the fourteen risk areas.

Sediment and surface water samples that were included in the HHRA evaluation were collected from the wetland portions of the Site, located within Parcel B, and represent sediment and surface water that current or future trespassers may be exposed to while wading. The Site

wetlands are an exposure area unto themselves; therefore, sediment and surface water data obtained from the Site were not divided into subsets.

Groundwater data were divided into two subsets of data representing Parcel A and Parcel B for use in the risk evaluations. Currently, groundwater at the Site is not used as drinking water. All areas of the Site are served by municipal water supplies. The groundwater is classified as class GB, presumed not suitable for human consumption without treatment. Therefore, contact with groundwater is limited to potential exposures from volatilization of groundwater into current or future indoor air spaces. All groundwater data from Site monitoring wells regardless of depth were included in the COPC selection step. Groundwater data in Parcel A are used to evaluate groundwater that may volatilize into current or future indoor air spaces at the currently developed properties. Since the Calabrese parcel, Parcel B, is currently undeveloped, groundwater data in Parcel B are used to evaluate groundwater that may volatilize into future indoor air spaces.

Indoor air data were not collected. As noted above, groundwater data were utilized to evaluate potential indoor air exposures.

Data utilized in this risk assessment consist of validated analytical results of known and sufficient quality for use in quantitative risk calculations. The soil, sediment, and surface water data used were validated in accordance with EPA Tier II or higher validation levels and determined to be of adequate quality for use in the risk assessment. Groundwater monitoring data were also validated in accordance with EPA Tier II or higher validation levels. Groundwater profiling data were only validated in accordance with EPA Tier I validation levels; however, this data (and groundwater monitoring data) were only used for screening level evaluations. Analytical results qualified as rejected, “R,” during the data validation process, were not considered because of their potential unreliability. Estimated values (J qualified) were used as the reported value. All U-qualified results represent non-detects for the parameter evaluated. The concentration was assumed to be present in the sample at the sample quantitation limit (SQL). Blank-qualified results were treated as non-detects. If a sample duplicate was collected and analyzed and one was a detection and the other was not, the detected concentration was used. If the results of a duplicate pair were similar (i.e., both detected or both non-detected), the average of the two reported concentrations was used for subsequent calculations unless there was a greater than 50 percent relative percent difference

(or greater than 30 percent relative difference for groundwater), in which case the higher of the two concentrations was used.

The available database considered for use in this risk assessment includes:

- Soil data from soil borings, and surface soil samples collected between 1999 and 2010 (described in Section 4 of the RI);
- Sediment and surface water data from samples collected between 1999 and 2004 (described in Section 4 of the RI);
- Groundwater data from 2004 through 2010 monitoring well sampling (described in Section 4 of the RI); and
- Groundwater fixed laboratory data from 2010 groundwater profiling samples (described in Section 4 of the RI).

Appendix B provides lists of sample locations included in the HHRA for each data set. Sample locations are shown on Figures 3-1 (soil), 3-2 (sediment and surface water), and 3-3 (groundwater). Analytical results for these samples are presented in the RI, Appendix G. Section 2 of the RI discusses sample collection and the fixed laboratory analysis by standard EPA methods. Section 4 of the RI discusses the analytical results.

3.1 Selection of COPCs

The selection of COPCs was based on chemical-specific concentrations, occurrence, distribution, and toxicity. COPCs were selected to represent Site contamination and to provide the framework for the quantitative HHRA. COPCs include only those chemicals with positive detections, and are limited to those chemicals that exceed a selection criterion. The selection criteria (risk-based concentrations) were used to reduce the number of chemicals considered in the risk assessment, following EPA Region 1 risk assessment guidance and direction. The premise of this screening step is that risk is typically dominated by a few chemicals and that, although dozens may actually be detected, some of those chemicals may contribute minimally to the total risk. Residential criteria were used at this Site as a conservative screening tool to be protective of all potential current and future site uses. Residential criteria are particularly conservative for screening soils from commercial properties or undeveloped properties that are unlikely to be developed for residential use, or for screening sediment or surface water.

Exposures to sediment or surface water are limited to recreational exposures; however, no recreational screening criteria are available.

COPCs were identified on a risk area basis where applicable. A chemical was selected as a COPC if the maximum detected concentration was greater than the associated risk-based concentration (RBC) or when no RBC was available. Frequency of detection was not considered in COPC selection.

The criteria used to identify COPCs are presented in Appendix A, Tables A-2.1 through A-2.5. Chemicals with maximum concentrations greater than the COPC screening levels are discussed in Section 3.2. Discussions of the criteria used for COPC selection are provided in the remainder of this section.

Criteria for the Selection of COPCs in Soil and Sediment

The following screening criteria were used to identify soil and sediment COPCs:

- **EPA Regional Screening Levels (RSLs) for Soil and Sediment Exposures.** Surface soil, aggregate soil, and sediment concentrations were compared to EPA RSLs for residential soil (EPA, 2009a), adjusted in accordance with EPA Region 1 practice. The EPA RSL Table identifies concentrations of potential concern for nearly 600 chemicals in various media (air, drinking water, and soil) using certain reasonable maximum exposure default assumptions. Residential soil RSLs represent a conservative screen for sediment, since exposures to sediment would be more consistent with recreational land use. RSLs are not available for recreational exposures to sediment.

  The EPA RSL residential soil exposure values were developed by EPA based on the methodology presented in *RAGS HHEM, Part B* (EPA, 1991b) and consider the ingestion, dermal, and inhalation exposure routes. The EPA RSL residential soil exposure values for carcinogens were developed by EPA using an age-adjusted exposure equation, which assumes that a receptor is exposed to soil at a frequency of 350 days per year for a 30-year exposure period (6 years as a child and 24 years as an adult). The EPA RSL criteria for chemicals with non-cancer effects are based on a child exposed to soil at a frequency of 350 days per year for a 6-year exposure period. For

carcinogenic chemicals, the values used for COPC screening are based on a 1×10^{-6} target incremental lifetime cancer risk. The EPA RSLs for chemicals with non-cancer effects are based on a target hazard quotient (HQ) of 1.0; however, these values were adjusted to COPC screening levels based on a target HQ of 0.1, which is one-tenth of the suggested cumulative target non-cancer risk for a potential receptor. The estimation of cumulative target non-cancer risks is described in greater detail in Section 6.0. For contaminants with both carcinogenic effects and non-cancer effects, the lower of the adjusted RSL based on non-cancer risk at an HQ of 0.1 and the RSL based on 1×10^{-6} cancer risk, was used for COPC screening.

- **EPA Soil Lead Guidance.** EPA has developed residential RSL concentrations for lead, based on the EPA's Office of Solid Waste and Emergency Response (OSWER) soil screening level of 400 milligrams per kilogram (mg/Kg) for residential land use (EPA, 1994b). The EPA's Integrated Exposure Uptake and Biokinetic (IEUBK) model, which estimates the risk to a child resident, is the basis for this soil screening level. The lead screening level based on residential land use was applied as a conservative approach for the Site.

Criteria for the Selection of COPCs in Surface Water

The following screening criteria were used to identify surface water COPCs:

- **EPA RSLs for Tap Water Ingestion.** Surface water concentrations were screened against EPA RSLs for tap water (EPA, 2009a), adjusted in accordance with EPA Region 1 guidance. Tap water RSLs represent a conservative screen for surface water, since Site surface water is not used as a potable water source. RSLs are not available for recreational exposures to surface water.

  The EPA RSLs for tap water were developed by EPA based on the methodology presented in *RAGS HHEM, Part B* (EPA, 1991b) and consider ingestion of drinking water and inhalation of volatiles from household water use. The EPA RSL tap water values for carcinogens were developed by EPA using an age-adjusted exposure equation, which assumes that a receptor uses a water supply for household purposes at a frequency of 350 days per year for a 30-year exposure period (6 years as a child and

24 years as an adult). The EPA RSL criteria for chemicals with non-cancer effects are based on an adult 30-year exposure.

For carcinogenic chemicals, the values used for COPC screening are based on a 1×10^{-6} target incremental lifetime cancer risk. The criteria for chemicals with non-cancer effects are based on a target HQ of 1.0; however, these values were adjusted to COPC screening levels based on a target HQ of 0.1. For contaminants with both carcinogenic effects and non-cancer effects, the lower of the adjusted RSL based on non-cancer risk at an HQ of 0.1 and the RSL based on 1×10^{-6} cancer risk, was used for COPC screening.

- **EPA Lead Guidance.** EPA has not developed risk-based concentrations for lead in tap water. Since lead was detected in surface water at the Site, the EPA's Office of Ground Water and Drinking Water drinking water action level of 15 micrograms per liter (µg/L) (EPA, 2009c) was used as the COPC selection criteria for lead.

Criteria for the Selection of COPCs in Groundwater

The following groundwater screening criteria were used to identify COPCs in groundwater for the protection of indoor air:

- **EPA Subsurface Vapor Intrusion Guidance.** Groundwater concentrations were screened against EPA OSWER's *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (EPA, 2002a).

  Table 2c of the Draft Vapor Intrusion Guidance presents target groundwater concentrations generally based on a 1×10^{-6} target incremental lifetime cancer risk or a non-cancer target HQ of 1.0 for residential indoor air exposures. The Table 2c values assume conservative generic attenuation factors that reflect generally reasonable worst-case conditions for a first-pass screening of groundwater data. Since the Draft Vapor Intrusion Guidance was published in 2002, toxicity values on which the screening values were based for several of the detected contaminants have been updated or withdrawn. For this reason, the screening values for those contaminants have been revised in this HHRA to reflect the current toxicity values. The Table 2c values and revised values for

non-carcinogenic chemicals were adjusted based on a target HQ of 0.1. Appendix F, Table F-1 presents the documentation for these revised screening values. Several of the screening values in the Draft Vapor Intrusion Guidance were maximum contaminant levels (MCLs), rather than inhalation risk-based values. For purposes of COPC selection, these MCL-based values were replaced with inhalation risk-based values provided by EPA Region 1, March 11, 2010.

Chemical-Specific Considerations

For PCBs, individual Aroclors were compared to screening criterion for individual Aroclors. The screening criterion for high risk PCBs was used for screening Aroclors 1242, 1248, and 1260. Because a non-cancer based screening value is available for Aroclor 1254, and the adjusted non-cancer based screening value is less than the cancer based screening value for high risk PCBs, the adjusted non-cancer based screening value was used for screening Aroclor 1254. Because EPA is concerned with risks from total PCBs, an additional evaluation was done for total PCB concentrations; please see Appendix A, Table A-11.

Data evaluation for dioxins was evaluated through use of dioxin toxicity equivalents (TEQs). The toxicity of one specific dioxin compound, 2,3,7,8-tetrachloro-dibenzo-p-dioxin (2,3,7,8-TCDD), has been studied more than other known dioxins and furans. The toxicities of all other dioxins and furans are expressed in relation to 2,3,7,8-TCDD (van der Berg et al, 2006). The Toxicity Equivalent Factors (TEFs), presented in Appendix C, were used to convert concentrations of individual dioxin and furan congeners to TEQs of 2,3,7,8-TCDD. Concentrations of individual dioxins and furans were multiplied by their TEFs to yield 2,3,7,8-TCDD equivalent concentrations. These values were then totaled to yield total dioxin TEQs for each sample. The TEQs could then be compared to the screening toxicity value for 2,3,7,8-TCDD in the COPC selection step.

The EPA RSL for hexavalent chromium was used as a screening criterion for total chromium to be conservative. Additional analysis is anticipated to speciate chromium or verify what percent of total chromium is hexavalent chromium and what percent is trivalent chromium.

The EPA RSL for metallic vanadium was used as a screening criterion for vanadium to be conservative.

For several contaminants for which EPA has little or no information regarding the chemical's toxicity, screening values from similar chemicals were used as surrogate screening values. The EPA RSL values for anthracene, acenaphthene, and naphthalene were used as surrogate screening values for phenanthrene, acenaphthylene, and benzo(g,h,i)perylene, respectively. The EPA RSL value for 1,2,4-trichlorobenzene was used as a surrogate screening value for 1,2,3-trichlorobenzene. The EPA RSL value for endrin was used as a surrogate screening values for endrin aldehyde and endrin ketone. The EPA RSL values for endosulfan were used as surrogate screening values for endosulfan I, endosulfan II, and endosulfan sulfate. The surrogate values were used as a qualitative approach for screening purposes only; surrogate toxicity values were not used to calculate risk.

Essential nutrients, including calcium, magnesium, potassium, and sodium, were not selected as COPCs.

Because EPA Region 1 does not advocate quantitative risk assessment of the health effects of copper, this metal was not selected as a COPC. The EPA RSL for copper was based on a provisional oral RfD. EPA Region 1 does not endorse its use because this provisional oral RfD was based on concentrations needed to protect against a deficiency of the metal, rather than on quantitative estimates related to the hazard posed by overexposure (EPA, 1999).

Potential Applicable or Relevant and Appropriate Requirements (ARARs)

Connecticut Remediation Standard Regulations (RSRs) criteria (CTDEP, 1996, 2003, and 2005) are considered potential ARARs and are presented in COPC screening tables for informational purposes. The State of Connecticut has not developed RSRs for all chemicals positively detected at the Site.

- **Connecticut Residential Direct Exposure Criteria for Soil.** The state has developed RSRs for direct exposures to soil by residents and industrial/commercial workers (CTDEP, 1996). Since some portions of Scovill are residential or could be residential in the future, Connecticut RSRs for residents were considered as potential ARARs. RSRs for direct contact exposures to soil are calculated using methodologies similar to those used to develop the EPA RSLs for soil. However, the actual models and exposure

assumptions employed by the state are different from those advocated by EPA. The standards for carcinogenic chemicals are based on a 1×10^{-6} target incremental lifetime cancer risk. The standards for non-carcinogenic chemicals are based on a target HQ of 1. These standards are presented in the COPC screening tables for soils and sediment (Appendix A, Tables A-2.1 through A-2.3) for informational purposes.

- **Connecticut Residential Volatilization Criteria for Groundwater.** The state has developed RSRs for exposures by residents and industrial/commercial workers to groundwater contaminants through volatilization into indoor air. The Volatilization Criteria were proposed by the state in 2003 (CTDEP, 2003) and have not been formally promulgated. These Volatilization Criteria were established to protect human health from volatile substances in shallow groundwater that may migrate from groundwater and enter overlying buildings. Since some portions of the Site are residential or could be residential in the future, Connecticut Volatilization Criteria for residents were considered as potential ARARs. The standards for carcinogenic chemicals are based on a 1×10^{-6} target incremental lifetime cancer risk. The standards for non-carcinogenic chemicals are based on a target HQ of 1. These standards are presented in the COPC screening tables for groundwater (Appendix A, Tables A-2.5a and A-2.5b) for informational purposes.

Off-Site Samples

Soil, sediment, surface water, and groundwater samples were collected from areas outside the limits of the Site during Site investigation activities. The results of these sampling activities are appended in the RI. Off-Site sample concentrations were not used in the COPC selection process and are not discussed further in this HHRA.

3.2 Identification of COPCs

Appendix A, Tables A-2.1 through A-2.5 identify the COPCs selected for quantitative risk assessment for the Site. Because EPA is concerned with risks from total PCBs, an additional evaluation was done for total PCB concentrations; please see Appendix A, Table A-11.

3.2.1 Surface Soil COPCs

Appendix A, Tables A-2.1d1 through A-2.1j present the chemicals identified as COPCs in surface soils (depths of 0 to 2 foot bgs) collected from the Site risk areas as follows:

- Appendix A, Table A-2.1d1 – risk area D1;
- Appendix A, Table A-2.1d3 – risk area D3;
- Appendix A, Table A-2.1e1 – risk area E1;
- Appendix A, Table A-2.1e2 – risk area E2;
- Appendix A, Table A-2.1e3 – risk area E3;
- Appendix A, Table A-2.1f – risk area F;
- Appendix A, Table A-2.1g – risk area G;
- Appendix A, Table A-2.1h – risk area H;
- Appendix A, Table A-2.1i – risk area I; and
- Appendix A, Table A-2.1j – risk area J.

Table 3.2-1 presents a summary of COPCs selected in surface soils for each risk area.

3.2.2 Aggregate Soil COPCs

Appendix A, Tables A-2.2d1 through A-2.2j present the chemicals identified as COPCs in aggregate soils within the Site risk areas following the naming scheme as noted above (e.g., Appendix A, Table A-2.2d1 – risk area D1, Appendix A, Table A-2.2d3 – risk area D3).

Table 3.2-2 presents a summary of COPCs selected in aggregate soils for each risk area.

3.2.3 Sediment COPCs

The following chemicals were identified as COPCs within the Site wetlands as shown in Appendix A, Table A-2.3:

- Semi-volatile organic compounds (SVOCs): benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, carbazole, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene;

- PCBs: Aroclors 1254 and 1260; and

- Metals: aluminum, arsenic, chromium, cobalt, iron, lead, manganese, mercury, and vanadium.

3.2.4 Surface Water COPCs

The following chemicals were identified as surface water COPCs in Site wetlands, as shown in Appendix A, Table A-2.4:

- SVOCs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene; and
- Metals: arsenic, cadmium, chromium, cobalt, iron, lead, manganese, mercury, and vanadium.

3.2.5 Groundwater COPCs for the Protection of Indoor Air

The following chemicals were identified as groundwater COPCs for the protection of indoor air for Parcel A, as shown in Appendix A, Table A-2.5a:

- SVOCs: acetophenone, benzaldehyde, acenaphthene, acenaphthylene, anthracene, 2-chlorophenol, dibenzofuran, fluorene, 2-methylnaphthalene, phenanthrene, and pyrene;

- VOCs: chloroform, cis-1,2-dichloroethene, methyl acetate, methyl cyclohexane, tetrachloroethylene (PCE), trichloroethylene (TCE), 1,3,5-trimethylbenzene, and vinyl chloride;

- Cyanide; and

- Mercury.

The following chemicals were identified as groundwater COPCs for the protection of indoor air for Parcel B, as shown in Appendix A, Table A-2.5b:

- SVOCs: acetophenone, benzaldehyde, acenaphthene, acenaphthylene, anthracene, dibenzofuran, fluorene, 2-methylnaphthalene, phenanthrene, and pyrene;
- VOCs: chloroform, cis-1,2-dichloroethene, 1,3,5-trimethylbenzene, and vinyl chloride;
- Cyanide; and
- Mercury.

3.3 Exposure Point Concentrations (EPCs)

According to EPA regional guidance (EPA, 1994a), risk assessments are conducted using an EPC for each COPC. The EPC represents an estimated concentration to which a receptor is assumed to be continuously exposed while in contact with an environmental medium. The EPC is generally defined as the 95 percent upper confidence limit on the mean (UCL) and is calculated using EPA's ProUCL software (EPA, 2010b). Each COPC per data set was looked at individually and professional judgment was used, guided by both the *ProUCL Technical Guide* (EPA, 2010c) and the *ProUCL User's Guide* (EPA, 2010d). The same EPC value was used for both reasonable maximum exposure (RME) and central tendency exposure (CTE) scenarios (See Section 4.3).

The following general guidelines were used to determine UCLs and EPCs:

- If less than 8 samples were collected, the EPC was the maximum detected concentration.

- If 8 or more samples were collected and the data set contained less than 5 percent detects, the EPC was an ad-hoc value, in this instance, the median concentration. For purposes of calculating the median, the concentrations for all U-qualified results (non-detects) were assumed to be the SQL.

- If 8 or more samples were collected and the data set contained more than 5 percent but less than 50 percent detects and at least 4 detects, a nonparametric-based UCL (either Kaplan-Meier (KM) or bootstrapping derived)/EPC, as per ProUCL's non-parametric-based UCL recommendation for the individual data set, was calculated. For data sets with censored results (i.e., non-detects), UCLs calculated using estimation procedures

(e.g., KM, bootstrapping) were considered instead of employing the simple substitution method (e.g., using one-half the SQL for non-detects) in selecting appropriate UCLs/EPCs as guided by the ProUCL supporting documentation. Note that the bootstrapping method was not considered unless there were at least 10 detects. If there were less than 4 detects, the EPC was an ad-hoc value (i.e., the median unless the median exceeded the maximum detected concentration, in which case the maximum detected concentration was selected as the EPC). Note that full detection limits were used as values for the non-detected samples in these data sets with fewer than 4 detects.

- If 8 or more samples were collected and the data set contained at least 50 percent detects, the appropriate distribution of the data set was determined and UCLs/EPCs were selected as guided by the ProUCL supporting documentation. Note that for data sets with censored results (i.e., non-detects), UCLs calculated using estimation procedures (e.g., KM, bootstrapping) were considered instead of employing the simple substitution method (e.g., using one-half the SQL for non-detects) in selecting appropriate UCLs/EPCs as guided by the ProUCL supporting documentation.

- If the recommended UCL exceeded the maximum detected concentration, a Chebyshev-based UCL was selected as the EPC if possible. If the Chebyshev-based UCL was still higher than maximum detected concentration, the maximum concentration was selected as the EPC.

Distributions and subsequent summary statistics were calculated using EPA's ProUCL Version 4.00.05 software (EPA, 2010b). ProUCL calculates 95 percent UCLs on the mean using 15 different computation methods, 5 parametric and 10 non-parametric. Parametric methods rely on the estimation of parameters (such as the mean or the standard deviation) describing the distribution of the variable of interest in the population; non-parametric methods do not.

The five parametric UCL computation methods include:

1. Student's-t UCL,
2. Approximate gamma UCL using chi-square approximation,
3. Adjusted gamma UCL (adjusted for level significance),

4. Land's H-UCL, and
5. Chebyshev inequality based UCL (using Minimum Variance Un-biased Estimators (MVUEs) of parameters of a lognormal distribution).

The ten non-parametric methods included in ProUCL are:

1. The central limit theorem (CLT) based UCL,
2. Modified-t statistic (adjusted for skewness) based UCL,
3. Adjusted-CLT (adjusted for skewness) based UCL,
4. Chebyshev inequality based UCL (using sample mean and sample standard deviation),
5. Jackknife method based UCL,
6. UCL based upon standard bootstrap,
7. UCL based upon percentile bootstrap,
8. UCL based upon bias – corrected accelerated (BCA) bootstrap,
9. UCL based upon bootstrap-t, and
10. UCL based upon Hall's bootstrap.

ProUCL provides recommendations on which UCL to use depending upon distributional assumptions and the skewness (as represented by the standard deviation of the data). Distributions are tested for using a number of procedures:

- Graphical test based upon a Q-Q plot.
- Lilliefors test ($\alpha = 0.05$; tests for normality or lognormality for data sets with sample sizes greater than or equal to 50).
- Shapiro-Wilk W test ($\alpha = 0.05$; tests for normality or lognormality for data sets with samples sizes less than 50).
- Anderson Darling test ($\alpha = 0.05$; tests for gamma distribution).
- Kolmogorov-Smirnov test ($\alpha = 0.05$; tests for gamma distribution).

Occasionally, ProUCL recommends two different UCLs. In these instances, the greater of the two is selected as the recommended UCL. Support documentation (output from ProUCL program) for the calculation of the UCLs is presented in Appendix D. EPCs used in the risk assessment are presented in Appendix A, Tables A-3.1 through A-3.4.

4.0 EXPOSURE ASSESSMENT

The exposure assessment defines and evaluates the exposures that may be experienced by a receptor population. To have an exposure, several factors must be present: there must be a source of contamination, there must be a mechanism through which a receptor can come into contact with the contaminants in that medium, and there must actually (or potentially) be a receptor present at the point of contact.

The exposure assessment presented consists of several sections that characterize the physical site setting and the receptors of concern, identify the potential contaminant migration and exposure pathways, and present the equations used to quantify exposure in terms of contaminant intake (dose). Section 4.1 presents the Site history and exposure setting. Section 4.2 presents the conceptual site model. Section 4.3 presents the equations and parameters for estimating chemical intake. Appendix E contains sample calculations for the exposure assessment. Exposure assumptions for each scenario are presented in Appendix A, Tables A-4.1 through A-4.11. Intakes are presented in Appendix A, Tables A-7.1d1-1 through A-7.2j-8.

4.1 Site History/Exposure Setting

As discussed in Section 1.0, the Site is located in the City of Waterbury, Connecticut and covers an area of approximately 20 acres. The Site and Site History are described in Section 1.0 of the RI and is shown on Figure 1-1.

The Site was used by the Company as a landfill from 1919 until mid-1974 for disposal of ash, cinder, demolition debris, and other wastes generated by the nearby Company facility. The limit of landfilling activities underlies both Parcel A and Parcel B and is shown on Figure 1-1. Filling at the Site commenced along Meriden Road and progressed northward. Once filling was completed in the southeastern portion of the Site, the Company subdivided the property and sold it to developers. As further areas were filled, those portions of the property were subdivided and were also sold to developers. By the mid-1990s, approximately 18 acres of the 25-acre property, including approximately 16 acres within the limits of landfilling activity, had been developed. The Company was well known for its metal casting capabilities, in particular, the manufacturing of brass products including buttons, belt buckles, clasps, and other products.

In the 20th century, the Company also manufactured appliances, small motors, watches, injection molded plastics, and photographic equipment. The Company produced numerous products for the military during World Wars I and II and the Korean conflict, including munitions, fuzes, and brass artillery casings. Gunpowder was used in the assembly of the fuzes. The Company also manufactured a variety of objects that used aluminum, chromium, copper, silver, tin, and zinc.

The Company's manufacturing processes included: anodizing, aluminum finishing, buffing, box making, fastener production, carpentry, metal casting, electrical instrument calibration and maintenance, metal forging, laundry and cleaning services, metals research and analyses, painting and lacquering, metal milling, electro-annealing, electroplating, grinding, wastewater treatment, welding, steam and hot water generation, solenoid coil production, solvent degreasing, power generation, and grenade fuze production. Wastes, including metals and polycyclic aromatic hydrocarbons (PAHs), from these operations may have been sent to the landfill.

In 1988, the Calabrese parcel (Parcel B) was in the initial stages of development by Calabrese Construction, Inc. when industrial waste was discovered, including capacitors, ash, cinder, crushed drums containing sludge material, metal waste, demolition debris, and other waste materials. The materials contained elevated levels of PAHs, PCBs, and metals (cadmium, silver, nickel, and zinc).

In the spring of 1998, 2,300 tons of PCB contaminated soil and 18 capacitors were removed from the Calabrese parcel by CTDEP. The area was temporarily capped with 1 foot of topsoil and hydro-seeded. After the installation of the temporary cap, approximately 3 of the 4 acres of the parcel within the limits of landfilling activity were fenced and posted.

In April 1999, EPA's Superfund Technical Assessment and Response Team (START) conducted sampling at the Site and surrounding area. The 1999 analytical results showed elevated levels of certain organic chemicals, including PCBs, and metals such as chromium, copper, nickel, silver, and zinc.

4.1.1 Local Land Use

The Site is located within the City of Waterbury. Parcel A is developed for a mixture of uses including apartment buildings, elderly housing, day care, and commercial properties. Under current conditions, Parcel B is undeveloped, with no regular activities occurring at the Site. The capped portion of Parcel B is fenced. Access to the Parcel B is generally controlled by the fencing; however, there is no gate security. Beyond the fencing, Parcel B consists of undeveloped open space, including wetlands. Parcel B has been identified as having potential for exposure for trespassers.

4.1.2 Local Water Use

Groundwater located beneath the Site is not currently used as a source of potable water. Receptors are not expected to contact groundwater. However, contaminants in shallow groundwater may volatilize into current or future indoor air spaces at Parcel A or into future buildings at Parcel B. Current or future human receptors may potentially be exposed to volatiles in indoor air. Inhalation of indoor air is evaluated qualitatively in Section 4.2.3.

4.2 Conceptual Site Model for Human Health Risk

This section and Figure 4.2-1 present the general conceptual site model for the Site as it pertains to contaminant exposure and risk to human receptors. A conceptual site model facilitates a consistent and comprehensive evaluation of the risks to human health by creating a framework for identifying the exposure routes or pathways by which human health may be impacted by contaminants predicted to exist at the source areas. A conceptual site model depicts the relationships between the following elements necessary to construct a complete exposure pathway:

- Sources of contamination and potential COPCs,
- Contaminant release mechanisms and transport pathways,
- Exposure mechanisms and exposure routes, and
- Potentially exposed populations.

The conceptual site model was developed to provide the basis for identifying the potential risks to human health. The model considers the current and future conditions within the Site, and the

actual or potential receptors that might come into contact with the COPCs and indicates those exposure routes that are carried through the quantitative risk assessment for each receptor. An objective of developing the conceptual site model is to focus attention on those pathways that contribute the most to the potential impacts on human health and to provide the rationale for screening out other exposure pathways that are minor components of the overall risk.

4.2.1 Sources of Contamination and Potential COPCs

The primary source of the contaminated soil, groundwater, sediment, and surface water at the Site is landfilling activities that occurred from 1919 until mid-1974 as described in the Site History subsection.

4.2.2 Contaminant Release Mechanisms and Transport Pathways

Contaminants may be released to site soil through direct discharge and released from soil by mechanisms such as stormwater runoff, wind erosion of surface soil, leaching and infiltration to the subsurface, migration through the subsurface soil to the water table, or excavation within areas of contamination. Once released from the source, contaminants are transported to and in media such as groundwater, air, surface water, or sediment. Contaminant fate and transport mechanisms available for contaminants at this Site are discussed in detail in Section 5.0 of the RI.

4.2.3 Exposure Mechanisms and Exposure Routes

The potential for exposure to the contamination within the Site is based on several factors, including current and future land uses, human activity patterns, site access controls, and chemical behavior in the environment. Based on these variables, exposure scenarios were developed to characterize the potential for human exposure under current and future site conditions. The future scenario accounts for possible changes in land use and site characteristics that may alter exposure and/or concentrations of COPCs in a given medium, in addition to the exposures that may result from current uses of the land.

The exposure assessment is based on the assumption that, in general, chemical compositions for environmental media are identical under current and future site conditions.

This HHRA defines an exposure route as a generalized description of the behavior that brings a receptor into contact with a contaminated medium. The exposure routes through which receptors may be exposed are:

- incidental ingestion of contaminated soils,
- dermal contact with contaminated soils,
- inhalation of dust and volatiles from soils,
- ingestion of home-grown fruits and vegetables,
- incidental ingestion of contaminated sediment,
- dermal contact with contaminated sediment,
- dermal contact with surface water, and
- inhalation of volatile contaminants in groundwater that may volatilize into future indoor air spaces.

A summary of the potentially significant exposures identified for quantitative evaluation is provided in Table 2-1 (the same table is also included in Appendix A as Table A-1).

Direct Contact with Soil and Sediment

Receptors may come into direct contact with soil or sediment contaminated by the release of chemicals from the source areas. During the receptor's period of contact, the individual may be exposed via inadvertent ingestion of a small amount of soil or sediment or via dermal absorption of certain contaminants in the soil or sediment.

Because of the limited guidance available to estimate soil and sediment exposure via dermal contact, dermal risks can be evaluated quantitatively only for contaminants with available soil absorption factors. Several of these chemicals were selected as COPCs for the Site, including arsenic, cadmium, several SVOCs, dioxins, and PCBs. Therefore, dermal risks associated with soil and sediment for these COPCs were quantitatively addressed in the risk assessment. Dermal contact with other chemicals detected in the Site soil or sediment may or may not result in a significant exposure. It should be noted that organics such as PAHs, which were detected frequently in the soil samples and selected as COPCs, tend to strongly adhere to organic matter in soil. For these chemicals to be percutaneously absorbed, they must first desorb from soil and then diffuse through the skin. Various factors affect the rate of dermal absorption, including the

amount of soil on the skin surface, soil characteristics (moisture, pH, organic carbon content, etc.), skin characteristics (thickness, temperature, hydration, etc.), volatilization losses, and chemical-specific properties.

Inhalation of Fugitive Dust and Vapors from Volatiles in Soil

Receptors may come into contact with soil particulates and vapors contaminated by the release of chemicals from the soil through inhalation of dust and soil vapors.

Ingestion of Home-Grown Fruits and Vegetables

Receptors may be exposed to soil contaminants through ingestion of home-grown fruits and vegetables. This pathway is based on the scenario that contaminants in soil are taken up by the roots of plants, resulting in contaminant concentrations in the edible portions of the plants. Although unlikely because of the small lot sizes, urban character of the area, and large amounts of asphalt surface covering many of the properties; future consumption of home-grown fruits and vegetables are considered possible at the Parcel A at apartment complexes with open space (risk areas D1, E1, E3, and F). Future consumption of home-grown fruits and vegetables is possible at Parcel B if it were developed for residential use (risk area J). Risks from this pathway are likely to be relatively minor compared to direct contact with soils. Therefore, risks from this pathway are not quantified. Such exposures are discussed in the uncertainty section (Section 7.2).

Dermal Contact with Surface Water

Receptors may come into direct contact with surface water contaminated by overland run off of contaminants from surrounding areas. During the receptor's period of contact, the individual may be exposed via inadvertent ingestion of a small amount of surface water or via dermal absorption of certain contaminants in the surface water. In general ingestion of surface water is only considered when swimming scenarios are considered. Depth of Site surface water precludes swimming and, therefore, ingestion of surface water is not considered for this Site.

Inhalation of Volatile Contaminants in Indoor Air

This pathway is based on the scenario that as part of daily living, a receptor is surrounded by an airspace that contains volatile organic vapors originating from contaminated media

(groundwater) in the source areas. Exposure of the receptor occurs upon inhalation of the indoor air.

Indoor air concerns were evaluated through OSWER's *Draft Guidance for Evaluating the Vapor Intrusion Indoor Air Pathway from Groundwater and Soils* (EPA, 2002a). As recommended in this guidance, a tiered approach was used to determine whether the vapor intrusion pathway should be further evaluated.

COPCs for this pathway were identified through comparison of Site groundwater data to vapor intrusion based screening values (Appendix A, Tables A-2.5a and A-2.5b, as described in Section 3.1). Appendix F, Tables F-2 and F-3 present the Tier 1 and Tier 2 evaluations of the shallow groundwater data for the selected COPCs for Parcel A and Parcel B, respectively. Shallow groundwater data, as opposed to the full groundwater data sets used in the initial identification of COPCs, are used in the Tier 1 and Tier 2 evaluations of this pathway. Shallow groundwater is comprised of samples collected from less than 30 feet in depth, consistent with CTDEP Proposed RSRs (CTDEP, 2003). Deep groundwater data were not used because they were not considered representative of groundwater available for vapor intrusion.

Tier 1 Evaluation

The Tier 1 evaluation is designed to determine if there are chemicals in shallow groundwater that are both sufficiently toxic and sufficiently volatile to be of potential concern via the vapor intrusion pathway. Chemicals identified as COPCs in groundwater were compared to the list of toxic and volatile chemicals provided on Table 1 of the OSWER's *Draft Guidance for Evaluating the Vapor Intrusion Indoor Air Pathway from Groundwater and Soils* (EPA, 2002a), which considers a chemical sufficiently toxic if the vapor concentration of the pure component poses an incremental lifetime cancer risk greater than 1×10^{-6} or a non-cancer HQ greater than 1 and considers a chemical sufficiently volatile if its Henry's Law Constant is 1×10^{-5} atm-m^3/mol or greater. For chemicals not listed in Table 1 of OSWER's *Draft Guidance for Evaluating the Vapor Intrusion Indoor Air Pathway from Groundwater and Soils* (EPA, 2002a), the Hazardous Substances Database (HSBD, 2011) was checked for Henry's Law Constants and the chemical was considered sufficiently volatile if the Henry's Law Constant was 1×10^{-5} atm-m^3/mol or greater. The Tier 1 evaluation is presented on Appendix F, Tables F-2 and F-3. Tier 1 results for the shallow groundwater data from Parcel A indicate fifteen groundwater COPCs detected are both sufficiently toxic by the inhalation pathway and sufficiently volatile. Tier 1 results for the

shallow groundwater data from Parcel B indicate that among groundwater COPCs, nine groundwater COPCs detected are both sufficiently toxic by the inhalation pathway and sufficiently volatile.

Tier 2 Evaluation

Contaminants identified as sufficiently volatile and sufficiently toxic in the Tier 1 screening step are evaluated in Tier 2. Because indoor air data are not available, for the Tier 2 evaluation, shallow groundwater data were screened against the target levels provided in Tables 2a, 2b, and 2c (corresponding to target cancer risks of 1×10^{-4}, 1×10^{-5}, and 1×10^{-6}, respectively) of the OSWER's *Draft Guidance for Evaluating the Vapor Intrusion Indoor Air Pathway from Groundwater and Soils* (EPA, 2002a). Several of the screening values in the Draft Vapor Intrusion Guidance were MCLs, rather than inhalation risk-based values. For purposes of the Tier 2 evaluation, these MCL-based values have been replaced by inhalation risk-based values (EPA Region I, March 11, 2010). In addition, since the Vapor Intrusion Guidance was issued, the toxicity values for several of the COPCs have been withdrawn or updated. The corresponding screening levels have been updated to reflect 2010 toxicity values. Lastly, for chemicals assessed in the Tier 2 evaluation that have non-carcinogenic effects, screening values were adjusted from a target HQ of 1.0 to a more conservative target HQ of 0.1.

The Tier 2 evaluation is presented on the far right side of Appendix F, Tables F-2 and F-3. For Parcel A, the detected shallow groundwater concentrations of chloroform, TCE, vinyl chloride, and mercury exceed the target levels. Chloroform was detected in just 2 of 95 shallow groundwater samples in Parcel A. The maximum chloroform concentration corresponds to a cancer risk level of approximately 2×10^{-6} for residential indoor air exposures. TCE was detected in just 8 of 96 shallow groundwater samples in Parcel A. The maximum TCE concentration corresponds to a cancer risk level of approximately 4×10^{-6} for residential indoor air exposures. Vinyl chloride was detected in 15 of 95 shallow groundwater samples in Parcel A. The maximum vinyl chloride concentration corresponds to a cancer risk level of slightly over 1×10^{-4} for residential indoor air exposures. Mercury was detected in 6 of 70 shallow groundwater samples in Parcel A. The maximum mercury concentration corresponds to a HQ level of less than 1 for residential indoor air exposures.

For Parcel B, the detected shallow groundwater concentrations of vinyl chloride and mercury exceed the target levels. Vinyl chloride was detected in 10 of 29 shallow groundwater samples

in Parcel B. The maximum vinyl chloride concentration corresponds to a cancer risk level of approximately 2×10^{-5} for residential indoor air exposures. Mercury was detected in 1 of 9 shallow groundwater samples in Parcel B. The maximum mercury concentration corresponds to a HQ level of less than 1 for residential indoor air exposures.

Vapor Intrusion Pathway Evaluation Conclusion

The vapor intrusion pathway was considered potentially complete based on the results of the Tier 1 and Tier 2 evaluations where the contaminants were found to be sufficiently volatile and where maximum detected concentrations exceeded the target screening levels (cancer risk of 1×10^{-6} or HQ of 0.1). Shallow groundwater concentrations in Parcel A exceed the screening values and maximum detected shallow groundwater concentrations correspond to a cancer risk level of over 1×10^{-5} for residential indoor air exposures. Of particular concern is risk area E1 where maximum detected concentrations of vinyl chloride, corresponding to a risk level of slightly over 1×10^{-4} for residential indoor air exposures, were detected at groundwater profiling location P4. Concentrations of vinyl chloride also exceeded screening levels at OP1, OP9, P2, and MW12S within risk area E1; MW6 and P9 within risk area F; and MW9S within risk area D1. Concentrations of TCE exceeded screening levels at MW12S and P4, within risk area E1. Concentrations of chloroform exceeded screening levels at MW8S within risk area I. Concentrations of dissolved mercury exceeded screening levels at MW12S within risk area E1 and MW4 within risk area I.

Because shallow groundwater vinyl chloride and mercury concentrations in Parcel B exceed the screening values, and maximum detected shallow groundwater concentrations correspond to a cancer risk level of over 1×10^{-6} for residential indoor air exposures; the vapor intrusion pathway was considered potentially complete.

Sporadic detections of volatile contaminants in shallow groundwater at concentrations exceeding vapor intrusion based screening levels indicate potential concern. However, the absence of a distinct plume or source calls into question the potential impacts. Building configurations and the presence of potential indoor air sources from ongoing activities complicates the collection of subslab soil gas or indoor air samples. For these reasons, further study is unlikely to provide definitive answers. Therefore, preventative remedial action is recommended.

4.2.4 Potentially Exposed Populations

Potential receptor populations have been identified under current and future land use conditions. These receptors were identified by analyzing the interaction of current and anticipated future land use practices with the identified sources of contamination.

The receptors included in the current use exposure scenario for Parcel A vary by risk area and include residents, industrial/commercial workers (although industrial properties are not located at the Site; this receptor is used to evaluate commercial workers), groundskeepers, day care children, and construction/utility workers. Children are presumed to visit at the elderly housing apartments (risk area E1) and are considered under a child recreational visitor scenario. Residents, child recreational visitors, industrial/commercial workers, groundskeepers, and day care children could potentially contact surface soil. Construction/utility workers could potentially contact aggregate soil.

It is likely that future uses of properties within Parcel A will remain unchanged. It was assumed that current residential properties would remain residential and current commercial properties would remain commercial. Therefore, the receptors included in the future use exposure scenario for Parcel A vary by risk area and include residents, industrial/commercial workers, and construction/utility workers. It is assumed that elderly housing (risk area E1) could become housing for families and include children. A child resident is considered in the future scenario at this risk area. Each of these future receptors could potentially contact subsurface soil brought to the surface during re-development or construction work. Because future use of the elderly housing could change to allow families without re-development at the Site and disturbance of surface soils, a future residential scenario including children exposed to surface soil is also considered.

For Parcel A, the following receptors were considered:

- current and future residents through soil contact during play or yard work and to volatile COPCs in groundwater through inhalation of indoor air;
- current and future (child) recreational visitors through soil contact during outdoor activities;

- current and future industrial/commercial workers through soil contact during work and to volatile COPCs in groundwater through inhalation of indoor air;
- current and future day care children through soil contact during outdoor play and to volatile COPCs in groundwater through inhalation of indoor air;
- current and future groundskeepers through soil contact during work; and
- current and future construction/utility workers through soil contact during excavation activities.

The receptors included in the current use exposure scenario for Parcel B (risk area J) are trespassers. Trespassers could potentially contact surface soil, sediment, and surface water.

The future use of Parcel B is unknown; however, future residential use and future industrial/commercial use were considered. A future residential scenario represents the most conservative future use of the Site. Future residents, industrial/commercial workers, groundskeepers, and construction or utility workers potentially exposed to aggregate soil were evaluated. Future residents and industrial/commercial workers potentially exposed to surface soil were also evaluated.

For Parcel B, the following receptors were considered:

- current and future (adolescent) trespassers through soil, sediment, and surface water contact during outdoor activities;
- future residents through soil contact during play or yard work and to volatile COPCs in groundwater through inhalation of indoor air;
- future groundskeepers through soil contact during work;
- future industrial/commercial workers through soil contact during work and to volatile COPCs in groundwater through inhalation of indoor air; and
- future construction/utility workers through soil contact during excavation activities.

Figure 4.2-1 indicates which receptors/exposure routes are considered for each exposure area. Table 2-1 presents receptors and exposure pathways identified for the Site and provides the rationale for the quantitative evaluation of selected exposure pathways.

4.3 Identification of Exposure Equations and Parameters

To estimate the potential risk to human health that may be posed by the presence of COPCs at the Site, it is first necessary to estimate the potential Average Daily Dose (ADD) of each COPC. The ADD is estimated for each compound via each exposure pathway by which the receptor is assumed to be exposed. ADD equations combine the estimates of compound concentration in the environmental medium of interest with assumptions regarding the type and magnitude of each receptor's potential exposure to provide a numerical estimate of the exposure dose. The exposure dose is defined as the amount of COPC taken into the receptor and is expressed in units of milligrams of COPC per kilogram of body weight per day (mg/Kg-day).

Exposure doses are defined differently for potential carcinogenic and non-carcinogenic effects. The Chronic Average Daily Dose (CADD) is used to estimate a receptor's potential intake from exposure to a COPC with non-carcinogenic effects. According to EPA guidance (EPA, 1989a), the CADD should be calculated by averaging the dose over the period of time for which the receptor is assumed to be exposed. Therefore, the averaging period is the same as the exposure duration. For COPCs with potential carcinogenic effects, however, the Lifetime Average Daily Dose (LADD) is employed to estimate potential exposures. In accordance with EPA guidance (EPA, 1989a), the LADD is calculated by averaging exposure over the receptor's assumed lifetime (70 years). Therefore, the averaging period is the same as the receptor's assumed lifetime. All equations used to estimate potential exposure doses follow EPA guidelines (EPA, 1989a).

Exposures depend on the predicted concentrations of chemicals in environmental media at the exposure points, and on scenario-specific assumptions and intake parameters based on local land use practices. Both contaminant concentrations and land use are subject to change over time. This results in a large number of possible combinations of receptors, media, exposure pathways, and concentrations. As mentioned previously, Appendix A, Table A-1 presents a summary of the exposure pathways evaluated in the quantitative risk assessment.

Exposure model parameters are described in Section 4.3 and presented in Appendix A, Tables A-4.1 through A-4.11. The standardized intake equations for estimating a receptor's average daily dose, dermally absorbed dose, and average daily concentrations (both lifetime and chronic) are also presented on the tables. The parameters are used in the intake

equations, along with the EPCs presented in Appendix A, Tables A-3.1 through A-3.4, to calculate intakes, which in combinations with toxicity values presented in Appendix A, Tables A-5.1, A-5.2, A-6.1, and A-6.2 are used to determine risks. Individual chemical intakes for each receptor/exposure route combination are presented in Appendix A, Tables A-7.1d1 through A-7.2j.

Two bounding estimates of each exposure scenario were considered, consistent with EPA Region 1 guidance. The first is identified as a central tendency exposure (CTE) receptor, which was developed using both regional guidance (EPA, 1994a) and professional judgment regarding site-specific conditions. The second class of receptor is called the reasonable maximum exposure (RME) and was developed according to EPA guidance (EPA, 1989a and 1994a). The CTE scenario uses average values for exposure parameters and represents an “average case” exposure scenario. The RME scenario uses values that represent the upper distribution or “high-end” of population exposure for exposure parameters. The RME scenario is intended to provide an upper bound of the possible risk. The RME is conceptually the “high end” exposure, above the 90th percentile of the population distribution, but not higher than the individual in the population with the highest exposure.

Exposure scenarios for each of the receptor groups defined above are discussed below with exposure model parameters presented in Appendix A, Tables A-4.1 through A-4.11.

The values presented in these tables reflect current EPA guidance and comments received from EPA Region 1. The sources for all parameters are referenced in footnotes on each table.

4.3.1 General Exposure Parameter Assumptions

Several parameters are used in multiple scenarios.

- Body weight is the same for each adult (70 kilograms (Kg)), child (15 Kg), and adolescent (39 Kg), irrespective of scenario.

- Averaging Time (AT) is always the years of the exposure duration (ED) times 365 days per year for CADD and 70 years times 365 days per year for LADD.

- Appendix G presents the chemical-specific volatilization factors used in evaluations of inhalation of soil vapors.

- The fraction of soil intake derived from the contaminated source was set at one for all scenarios.

- Oral absorption factors (OABS) are conservatively assumed to be one for all ingestion routes.

- Chemical-specific dermal absorption factors (DABS), presented in *RAGS HHEM, Part E, Supplemental Guidance for Dermal Risk Assessment* (EPA, 2004), were used to estimate exposure doses for soil and sediment exposures. Unfortunately, limited information regarding dermal absorption is available. The DABS values that are available for the COPCs are presented in Appendix H.

- Appendix H also presents chemical-specific parameters for dermal contact with water.

- A particulate emission factor (PEF) of 1.4 x 10^9 cubic meters per kilogram (m^3/Kg) (EPA, 2002b) was used for both CTE and RME scenarios for all scenarios except construction/utility workers.

4.3.2 Scenario-specific Exposure Parameter Assumptions

<u>Current and Future Residents, Exposure to Soil</u>

A current resident, potentially exposed to surface soil via incidental ingestion and dermal contact and inhalation of fugitive dust and soil vapors was evaluated for Parcel A, risk areas D1, E1, E3, and F. Because elderly housing currently occupies risk area E1, the current residential receptor for this risk area was limited to an adult scenario. It is assumed that elderly housing (risk area E1) could become housing for families and include children in the future. Because future use of the elderly housing could change to allow families without re-development at the Site and disturbance of surface soils, a future residential scenario, including children exposed to surface soil is considered. A hypothetical future residential receptor, potentially exposed to aggregate soil via incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors, was also evaluated for Parcel A, risk areas D1, E1, E3, and F and Parcel B, risk area J.

Assumptions used in the evaluations of residential soil exposures apply to both surface soil and aggregate soil exposures.

Non-cancer risks for residents are evaluated separately for adults and children. Cancer risks are evaluated for an age-adjusted resident combining child and adult exposures.

Adult residents were assumed to be exposed to soil 350 days per year for both the RME and CTE evaluations for 7 years for the CTE evaluation and 24 years for the RME evaluation. Child residents were assumed to be exposed to soil 350 days per year for 2 years for the CTE evaluation and 6 years for the RME evaluation. The proposed exposure duration values were based on EPA guidance for RME and CTE evaluation (EPA, 1997a and 2002b). Values for small children for the RME evaluation reflect the entire age span for the receptor evaluated. The associated CTE values reflect a short period of time (basically one third of the RME value).

Adult residents were assumed to ingest an average of 50 milligrams (mg) of soil per day for the CTE evaluation, and 100 mg of soil per day for the RME evaluation. Child residents were assumed to ingest an average of 100 mg of soil per day for the CTE evaluation, and 200 mg of soil per day for the RME evaluation.

Hands, forearms, lower legs, and head were assumed to be available for dermal contact with soil for adults. Hands, forearms, lower legs, feet, and head were assumed to be available for dermal contact with soil for young children. The calculated available skin surface areas for dermal contact with soil for adults and small children (ages 0-6 years) were 5,700 square centimeters (cm^2) and 2,800 cm^2, respectively. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations.

Values of 0.07 milligrams per square centimeter per event (mg/cm^2-event) and 0.01 mg/cm^2-event were used as soil-to-skin adherence factors (SSAF) for adult exposures for the RME and CTE evaluations, respectively. The adult RME SSAF of 0.07 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for gardeners. The adult CTE SSAF of 0.01 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for residential groundskeepers. Values of 0.2 mg/cm^2-event and 0.04 mg/cm^2-event were used as SSAFs for child exposures for the RME and CTE evaluations, respectively. The child RME SSAF of 0.2 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children

playing in wet soil. The child CTE SSAF of 0.04 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in dry soil and daycare children (EPA, 2004).

For all residents, inhalation of dust and soil vapor exposures assumed exposure occurs 24 hours per day.

Appendix A, Tables A-4.1 and A-4.2, present the exposure parameters for adult and child resident exposures to soil. Appendix A, Table A-4.3 presents the exposure parameters for age-adjusted lifetime resident exposures to soil.

Current and Future Recreational Visitors, Exposure to Soil

A hypothetical current/future child recreational visitor, potentially exposed to surface soil via incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors was evaluated. Current/future recreational visitors were assumed to be young children (ages 0 to 6 years), playing outdoors while visiting at the elderly housing apartments in risk area E1.

Future child residential exposures to aggregate soils were considered for this risk area. Since this represents a more conservative scenario than the child recreational visitor, future risks to a child recreational visitor exposed to aggregate soils were not quantified.

The exposure frequency assumptions for child recreational visitors were 78 days per year (2 days per week during 9 months per year) for soil for the CTE evaluation, and 156 days per year (4 days per week during 9 months per year) for soil for the RME evaluation. Child recreational visitors were assumed to ingest an average of 100 mg of soil per day for 2 years for the CTE evaluation, and 200 mg of soil per day for 6 years for the RME evaluation. The proposed exposure duration values were based on EPA guidance for RME and CTE evaluation (EPA, 1997a and 2002b). Values for small children for the RME evaluation reflect the entire age span for the receptor evaluated. The associated CTE values reflect a short period of time (basically one third of the RME value).

Hands, forearms, lower legs, feet, and head were assumed to be available for dermal contact with soil for young children. The calculated available skin surface area for dermal contact with

soil for young children was 2,800 cm^2. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations.

Values of 0.2 mg/cm^2-event and 0.04 mg/cm^2-event were used as SSAFs for child exposures for the RME and CTE evaluations, respectively. The child recreational RME SSAF of 0.2 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in wet soil. The child recreational CTE SSAF of 0.04 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in dry soil and daycare children (EPA, 2004).

For child recreational visitors, inhalation of dust and soil vapor exposures assumed exposure occurs 4 hours per day for the CTE scenario and 8 hours per day for the RME scenario.

Appendix A, Table A-4.4 presents the exposure parameters for current/future child recreational visitor exposures to surface soil.

Current and Future Groundskeepers, Exposure to Soil

It is possible that the groundskeeper may be exposed to surface soil during groundskeeping activities via ingestion and dermal contact and inhalation of fugitive dust and vapors at Parcel A, risk areas E1 and E3, which are currently occupied by multi-unit apartment buildings, and in the future to aggregate soils at Parcel B, risk area J. Assumptions used in the evaluations of groundskeeper soil exposures apply to both surface soil and aggregate soil exposures.

Groundskeepers were assumed to be exposed to Site soil for 45 days per year (5 days per week during 2 months per year) for 9 years for the CTE evaluation, and for 225 days per year for 25 years for the RME evaluation. These receptors were assumed to ingest an average of 50 mg of soil per day for the CTE evaluation, and 100 mg of soil per day for the RME evaluation. Head, hands, and forearms were expected to be available for dermal contact with soils. The calculated available skin surface area for these body parts was 3,300 cm^2. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations. Values of 0.2 mg/cm^2-event and 0.02 mg/cm^2-event were used as SSAFs for adult groundskeepers for the RME and CTE evaluations, respectively. The RME value corresponds to the 50th percentile weighted adherence values for heavy equipment operators and utility

workers. The CTE value corresponds to the 50th percentile weighted adherence values for commercial groundskeepers (EPA, 2004).

For all groundskeepers, inhalation of dust and soil vapor exposures assumed exposure occurs 8 hours per day.

Appendix A, Table A-4.5 presents the exposure parameters for groundskeeper exposures to soil and dust.

Current and Future Industrial/Commercial Workers, Exposure to Soil

For purposes of evaluation, the current and future industrial/commercial worker scenarios were defined as indoor/outdoor workers in direct contact with soils on a frequent basis. These scenarios represent conservative scenarios.

Industrial/commercial workers, potentially exposed to COPCs in surface soil via incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors, were evaluated for Parcel A, risk areas D3, E2, G, H, and I and Parcel B, risk area J, assuming future conditions without re-mixing of soils. In the future, contaminated soils currently located at depth may be brought to the surface through excavation and land development. Therefore, a second industrial/commercial worker, potentially exposed to aggregate soil was also evaluated for Parcel A, risk areas D3, E2, G, H, and I, and Parcel B, risk area J. Assumptions used in the evaluations of industrial/commercial worker soil exposures apply to both surface soil and aggregate soil exposures.

Industrial/commercial workers were assumed to be exposed to Site soil for 219 days per year for 9 years for the CTE evaluation, and for 250 days per year for 25 years for the RME evaluation. These receptors were assumed to ingest an average of 50 mg of soil per day for the CTE evaluation, and 100 mg of soil per day for the RME evaluation. Head, hands, and forearms were expected to be available for dermal contact with soils. The calculated available skin surface area for these body parts was 3,300 cm^2. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations. Values of 0.2 mg/cm^2-event and 0.02 mg/cm^2-event were used as SSAFs for adult industrial/commercial workers for the RME and CTE evaluations, respectively. The RME value corresponds to the 50th percentile weighted

adherence values for heavy equipment operators and utility workers. The CTE value corresponds to the 50th percentile weighted adherence values for commercial groundskeepers (EPA, 2004).

For all industrial/commercial workers, inhalation of dust and soil vapor exposures assumed exposure to dust occurs 8 hours per day.

Appendix A, Table A-4.6 presents the exposure parameters for industrial/commercial worker exposures to soil.

Current and Future Day Care Children, Exposure to Soil

A current and future day care child, potentially exposed to surface soil via incidental ingestion, dermal contact, and inhalation of fugitive dust at risk area E2, was evaluated. Day care children were assumed to be young children (ages 1 to 6 years). Assumptions used in the evaluations of day care child soil exposures apply to both surface soil and aggregate soil exposures.

Site-specific considerations were used to determine exposure frequencies for day care children. The exposure frequency assumptions for day care children were 72 days per year (2 half-days per week during 9 months per year) for 2 years for the CTE evaluation, and 250 days per year (5 full-days per week during 50 weeks per year) for 5 years for the RME evaluation. The proposed exposure duration values were based on professional judgment; 5 years for the RME evaluation reflects the ages 1 through 6 years, and 2 years for the CTE value reflects a short period of time (basically one third of the RME value and reflective of ages 1 to 3 years). Child receptors were assumed to ingest an average of 100 mg of soil per day for the CTE evaluation, and 200 mg of soil per day for the RME evaluation.

Hands, forearms, lower legs, feet, and head were assumed to be available for dermal contact with soil for young children. The calculated available skin surface area for dermal contact with soil for young children was 2,800 cm^2. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations.

Values of 0.2 mg/cm^2-event and 0.04 mg/cm^2-event were used as SSAFs for child exposures for the RME and CTE evaluations, respectively. The child recreational RME SSAF of

0.2 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in wet soil. The child recreational CTE SSAF of 0.04 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in dry soil and daycare children (EPA, 2004).

For day care children, inhalation of dust and vapor exposures assumed exposure occurs 4 hours per day for the CTE evaluation and 8 hours per day for the RME evaluation.

Appendix A, Table A-4.7 presents the exposure parameters for daycare children exposures to soil.

Current and Future Construction/Utility Workers, Exposure to Soil

Construction/utility workers potentially exposed to aggregate soil through incidental ingestion, dermal contact, and inhalation of fugitive dust and vapors during excavation activities at each of the risk areas were evaluated. Possible exposures of construction/utility workers to site-related contaminants would be through excavation activities during a project lasting no more than 1 year. The construction/utility worker may be in direct contact with soils as deep as 10 feet bgs.

Construction/utility workers were assumed to be exposed to Site soils for 26 days per year (1 day per week during 6 months per year) for the CTE evaluation, and to Site soils for 130 days per year (5 days per week during 6 months per year) for the RME evaluation. Exposure durations were set at 1 year. These receptors were assumed to ingest an average of 100 mg of soil per day for the CTE evaluation, and 330 mg of soil per day for the RME evaluation.

Head, hands, and forearms were expected to be available for dermal contact with soils. The calculated available skin surface area for these body parts was 3,300 cm^2. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations. Values of 0.3 mg/cm^2-event and 0.1 mg/cm^2-event were used as SSAFs for adult construction/utility workers for the RME and CTE evaluations, respectively. The RME value corresponds to the 95th percentile weighted adherence values for construction workers. The CTE value corresponds to the 50th percentile weighted adherence values for construction workers (EPA, 2004).

Construction/utility workers were assumed to inhale dust and vapors from soil for 8 hours per day for both the RME and CTE evaluations. A particulate emission factor of 1.4×10^6 m^3/Kg, calculated in Appendix G, was used for both CTE and RME scenarios.

Appendix A, Table A-4.8 presents the exposure parameters for construction/utility worker exposures to soil and dust.

Current and Future Trespassers, Exposure to Soil, Sediment, and Surface Water

The trespasser was assumed to be a local resident between the ages of 6 and 16 years old, weighing 39 kilograms. It was assumed that trespassers could contact surface soil and sediment via ingestion and dermal contact, dust and soil vapors through inhalation, and surface water via dermal contact.

The exposure frequency assumptions for trespassers were 18 days per year (2 days per week during 2 months per year) for the CTE evaluation and 78 days per year (2 days per week during 9 months per year) for the RME evaluation for soils and 9 days per year (1 day per week during 2 months per year) for the CTE evaluation and 18 days per year (1 day per week during 4 months per year) for the RME evaluation for sediment and surface water. Trespassers were assumed to ingest an average of 50 mg of soil and 50 mg of sediment per day for 10 years for the CTE evaluation, and 100 mg of soil and 100 mg of sediment per day for 10 years for the RME evaluation. The proposed exposure duration value reflects the entire age span for the receptor evaluated.

Hands, forearms, lower legs, and feet were assumed to be available for dermal contact with soil, sediment, and surface water. The calculated available skin surface area for dermal contact with soil, sediment, and surface water was 4,184 cm^2. Trespassers were assumed to be exposed to surface water 2 hours per day for the RME evaluation and 1 hour per day for the CTE evaluation. No attempt was made to vary a receptor's skin surface area for the RME and CTE evaluations. Values of 0.2 mg/cm^2-event and 0.04 mg/cm^2-event were used as SSAFs and sediment-to skin adherence factors for trespasser exposures for the RME and CTE evaluations, respectively. The trespasser RME SSAF of 0.2 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in wet soil. The trespasser CTE SSAF of

0.04 mg/cm^2-event corresponds to the 50th percentile weighted adherence values for children playing in dry soil and daycare children (EPA, 2004).

Trespassers were assumed to inhale dust and soil vapors from soil for 2 hours per day for the CTE evaluation and 4 hours per day for the RME evaluation.

Appendix A, Table A-4.9, A-4.10, and A-4.11 present the exposure parameters for trespasser exposures to soil, sediment, and surface water.

4.3.3 Intake Equations

The standardized intake equations for estimating a receptor's average daily dose, dermally absorbed dose, and average daily concentrations (both lifetime and chronic) are presented below.

Incidental Ingestion of Soil and Sediment

For soil, this pathway was evaluated for residents, child recreational visitors, industrial/ commercial workers, groundskeepers, day care children, construction/utility workers, and trespassers. For sediment, this pathway was evaluated for trespassers. In general, intakes associated with soil and sediment ingestion were calculated using the following equation from *RAGS HHEM, Part A* (EPA, 1989a):

Average Daily Dose (Lifetime and Chronic) Following Ingestion of Soil or Sediment (mg/Kg-day):

$$ADD = \frac{CS \times IR \times OABS \times FI \times EF \times ED \times CF}{BW \times AT}$$

where:

ADD = Average daily dose of contaminant from soil or sediment (mg/Kg-day)

CS = Exposure concentration for soil or sediment (mg/Kg)

IR	=	Ingestion rate (mg/day)
OABS	=	Oral absorption factor
FI	=	Fraction ingested from contaminated source (decimal fraction)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (year)
CF	=	Conversion factor (10^{-6} Kg/mg)
BW	=	Body weight (Kg)
AT	=	Averaging time (days); for non-carcinogens, AT=ED*365 days/year; for carcinogens, AT=70 yr*365 days/year

Dermal Contact with Soil and Sediment

For soil, this pathway was evaluated for residents, child recreational visitors, industrial/ commercial workers, groundskeepers, day care children, construction/utility workers, and trespassers. For sediment, this pathway was evaluated for trespassers. The following equations from *RAGS HHEM, Part E, Supplemental Guidance for Dermal Risk Assessment* (EPA, 2004) were used to estimate the average daily dose (lifetime and chronic) and the dermally absorbed dose (DAD) for soil and sediment:

Average Daily Dose (Lifetime and Chronic) Following Dermal Contact with Soil or Sediment (mg/Kg-day):

$$\mathrm{ADD} = \mathrm{DAD}$$

where:

ADD	=	Average daily dose (mg/Kg-day)
DAD	=	Dermally absorbed dose (mg/Kg-day)

Dermally Absorbed Dose (Lifetime and Chronic) Following Dermal Contact with Soil or Sediment (mg/Kg-day):

$$DAD = \frac{DA_{event} \text{ x } EF \text{ x } ED \text{ x } EV \text{ x } SA}{BW \text{ x } AT}$$

where:

DAD	=	Dermally absorbed dose (mg/Kg-day)
DA_{event}	=	Absorbed dose per event (mg/cm^2-event))
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
EV	=	Event frequency (events/day)
SA	=	Surface area (cm^2)
BW	=	Body weight (Kg)
AT	=	Averaging time (days);
		for non-carcinogens, AT=ED*365 days/yr;
		for carcinogens, AT=70 yr*365 days/yr

The calculation of the dose absorbed per unit area per event (DA_{event}) is as follows:

$$DA_{event} = CS \text{ x } SSAF \text{ x } DABS \text{ x } CF$$

where:

DA_{event}	=	Absorbed dose per event (mg/cm^2-event)
CS	=	Exposure concentration for soil or sediment (mg/Kg)
SSAF	=	Soil or sediment-to-skin adherence factor (mg/cm^2-event)
DABS	=	Dermal absorption fraction (unitless)
CF	=	Conversion factor (10^{-6} Kg/mg)

Estimating Potential Exposure from Inhalation of Fugitive Dust and Soil Vapors

Inhalation of fugitive dust and soil vapors was evaluated for all receptors. Inhalation exposures were evaluated using average daily concentrations (ADC) in combination with Reference Concentrations (RfCs) or inhalation unit risk factors following EPA guidance (EPA, 2009b).

The following equation from *RAGS HHEM, Part F, Supplemental Guidance for Inhalation Risk Assessment* (EPA, 2009b) was used to calculate potential risks from inhalation of fugitive dust:

Average Daily Concentration (Lifetime and Chronic) Following Inhalation of COPC (mg/Kg-day):

$$ADC = \frac{CS \times \frac{1}{PEF} \times ET \times EF \times ED \times CF \times CF2}{AT}$$

where:

ADC	=	Average daily concentration (micrograms per cubic meter (µg/m^3))
CS	=	Exposure concentration for soil (mg/Kg soil)
PEF	=	Particulate emission factor (m^3/Kg)
ET	=	Exposure time (hours per day (hr/day))
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (year)
CF	=	Conversion factor (10^3 µg/mg)
CF2	=	Conversion factor (days/hr)
AT	=	Averaging time (days)

The following equation from *RAGS HHEM, Part F, Supplemental Guidance for Inhalation Risk Assessment* (EPA, 2009b) was used to calculate potential risks from inhalation of soil vapors:

Average Daily Concentration (Lifetime and Chronic) Following Inhalation of COPC (mg/Kg-day):

$$ADC = \frac{CS \times \frac{1}{VF} \times ET \times EF \times ED \times CF \times CF2}{AT}$$

where:

ADC	=	Average daily concentration (µg/m^3)
CS	=	Exposure concentration for soil (mg/Kg soil)
VF	=	Volatilization factor (m^3/Kg)

ET = Exposure time (hr/day)

EF = Exposure frequency (days/year)

ED = Exposure duration (year)

CF = Conversion factor (10^3 µg/mg)

CF2 = Conversion factor (days/hr)

AT = Averaging time (days)

Estimating Potential Exposure from Dermal Contact with Surface Water

This pathway was evaluated for trespassers exposed to surface water.

Calculation of the average daily dose from dermal exposure to water follows EPA guidance (EPA, 2004) that differentiates between organics and inorganics, as presented below. The following equations from *RAGS HHEM, Part E, Supplemental Guidance for Dermal Risk Assessment* (EPA, 2004) were used to estimate the average daily dose (lifetime and chronic) and the DAD following dermal contact with surface water:

Average Daily Dose (Lifetime and Chronic) Following Dermal Contact with Water (mg/Kg-day):

$$\mathrm{ADD} = \mathrm{DAD}$$

where:

ADD = Average daily dose (mg/Kg-day)

DAD = Dermally absorbed dose (mg/Kg-day)

Dermally Absorbed Dose (Lifetime and Chronic) Following Dermal Contact with Water (mg/Kg-day):

$$\mathrm{DAD} = \frac{\mathrm{DA_{event}} \times \mathrm{EV} \times \mathrm{EF} \times \mathrm{ED} \times \mathrm{SA}}{\mathrm{BW} \times \mathrm{AT}}$$

where:

DAD	=	Dermally absorbed dose (mg/Kg-day)
DA_{event}	=	Absorbed dose per event (mg/cm^2-event)
EV	=	Event frequency (events/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
SA	=	Surface area (cm^2)
BW	=	Body weight (Kg)
AT	=	Averaging time (days)

The calculation of the DA_{event} is as follows for inorganics:

$$DA_{event} = CW \text{ x } Kp \text{ x } t_{event} \text{ x } CF$$

where:

DA_{event}	=	Absorbed dose per event (mg/cm^2-event)
CW	=	Concentration in water (milligrams per liter (µg/L))
Kp	=	Permeability coefficient (centimeter per hour (cm/hr))
t_{event}	=	Event time (hr/event)
CF	=	Conversion factor (10^{-6} mg-L/µg-cm^3)

The calculation of DA_{event} is as follows for organics:

$$DA_{event} = 2FA \text{ x } Kp \text{ x } CW \text{ x } CF \sqrt{\frac{6 \text{ x } T \text{ x } t_{event}}{\pi}}$$

[If $t_{event} < t^*$]

$$DA_{event} = FA \text{ x } Kp \text{ x } CW \text{ x } CF \text{ x} \left[\frac{t_{event}}{1+B} + 2 \text{ x } T \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

[If $t_{event} > t^*$]

where:

DA_{event}	=	Absorbed dose per event (mg/cm^2-event)
FA	=	Fraction absorbed (dimensionless, chemical specific)
Kp	=	Permeability coefficient (cm/hr)
CW	=	Concentration in water (µg/L)
t_{event}	=	Event time (hr/event)
T	=	Lag time (hr/event)
t*	=	Time to steady state (hr/event)
B	=	Dimensionless constant
CF	=	Conversion factor (10^{-6} mg-L/µg-cm^3)

5.0 TOXICITY ASSESSMENT

The toxicity assessment for the COPCs examines information concerning the potential human health effects of exposure to COPCs. The goal of the toxicity assessment is to provide, for each COPC, a quantitative estimate of the relationship between the magnitude and type of exposure and the severity or probability of human health effects. The toxicity values presented in this section are integrated with the exposure assessment (Section 4.0) to characterize the potential for the occurrence of adverse health effects (Section 6.0).

The toxicological evaluation involves a critical review and interpretation of toxicity data from epidemiological, clinical, animal, and in vitro studies. This review of the data ideally determines both the nature of the health effects associated with a particular chemical and the probability that a given quantity of a chemical could result in the referenced effect. This analysis defines the relationship between the dose received and the incidence of an adverse effect for the COPCs.

CSFs and URFs are the dose-response values used to evaluate potential carcinogens. Non-carcinogenic effects, such as organ damage or reproductive effects, are evaluated by RfDs for oral exposure and RfCs for inhalation exposure. The entire toxicological database is used to guide the derivation of these toxicity values. These data may include epidemiological studies, long-term animal bioassays, short-term tests, and evaluations of molecular structure. Data from these sources are reviewed to determine if a chemical is likely to be toxic to humans. Because

of the lack of available human studies, however, the majority of the toxicity data used to derive CSFs, URFs, RfDs, and RfCs comes from animal studies.

The EPA's Integrated Risk Information System (IRIS) database (EPA, 2010a) was consulted as the primary source for RfD and RfC values, as well as for CSFs and URFs. EPA intends that IRIS supersedes all other sources of toxicity information for risk assessment. Additional sources for the dose-response values used in the risk assessment were the EPA National Center for Environmental Assessment (NCEA) in Cincinnati, Ohio, and the Health Effects Assessment Summary Tables (HEAST) (EPA, 1997b). The following hierarchy was used for selection for toxicity values (EPA, 2003b):

- Tier 1 - EPA's IRIS;
- Tier 2 - EPA's Provisional Peer Reviewed Toxicity Values (PPRTVs) - The Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center (STSC) develops PPRTVs on a chemical specific basis when requested by EPA's Superfund program; and
- Tier 3 - Other toxicity values - Tier 3 includes additional EPA and non-EPA sources of toxicity information.

The EPA RSLs Table (EPA, 2009a) provides a source of NCEA values. Appendix A, Tables A-5.1 and A-6.1 present oral non-carcinogenic and carcinogenic toxicity values, respectively. Appendix A, Tables A-5.2 and A-6.2 present inhalation non-carcinogenic and carcinogenic toxicity values, respectively. For several COPCs without toxicity values, the toxicity values of similar contaminants were used as surrogates.

Toxicity profiles summarizing the available literature on carcinogenic and non-carcinogenic effects associated with human exposure to specific chemicals are available at www.epa.gov/iris or www.atsdr.cdc.gov.

5.1 Non-Carcinogenic Effects

For non-carcinogenic effects, it is assumed that there exists a dose below which no adverse health effects will be seen. Below this "threshold" dose, exposure to a chemical can be tolerated without adverse effects. Therefore, for non-carcinogenic effects, a range of exposures

exists that can be tolerated. Toxic effects are manifested only when physiologic protective mechanisms are overcome by exposures to a chemical above its threshold level.

The potential for non-carcinogenic health effects resulting from oral or dermal exposure to chemicals is assessed by comparing an exposure estimate (intake or dose) to an RfD. The RfD is expressed in units of mg/Kg-day and represents a daily intake of contaminant per kilogram of body weight that is not sufficient to cause the threshold effect of concern. An RfD is specific to the chemical, the route of exposure, and the duration over which the exposure occurs.

The potential for non-carcinogenic health effects resulting from inhalation exposure to chemicals is assessed by comparing an exposure concentration in air to an RfC. The RfC is expressed in units of milligrams per cubic meter (mg/m^3).

To derive an RfD or RfC, EPA reviews all relevant human and animal studies for each compound and selects the study (studies) pertinent to the derivation of the specific RfD or RfC. For non-carcinogenic effects, the most appropriate animal model (the species most biologically similar to the human) is identified. Pharmacokinetic data often enter into this determination. In the absence of sufficient data to identify the most appropriate animal model, the most sensitive species is chosen. The RfD or RfC is generally derived from the most comprehensive toxicology study that characterizes the dose-response relationship for the critical effect of the chemical. Preference is given to studies using the exposure route of concern; in the absence of such data, however, an RfD or RfC for one route of exposure may be extrapolated from data from a study that evaluated a different route of exposure. Such extrapolation must take into account pharmacokinetic and toxicological differences between the routes of exposure.

Each study is evaluated to determine the no-observed-adverse-effect-level (NOAEL) or, if the data are inadequate for such a determination, the lowest-observed-adverse-effect-level (LOAEL). The NOAEL corresponds to the dose (in mg/Kg-day) or concentration (in mg/m^3) that can be administered over a lifetime without inducing observable adverse effects. The LOAEL corresponds to the lowest daily dose or concentration that induces an observable adverse effect. The toxic effect characterized by the LOAEL is referred to as the "critical effect."

To derive an RfD or RfC, the NOAEL (or LOAEL) is divided by uncertainty factors to ensure that the RfD or RfC will be protective of human health. Uncertainty factors are applied to account for

extrapolation of data from laboratory animals to humans (interspecies extrapolation), variation in human sensitivity to the toxic effects of a compound (intraspecies differences), derivation of a chronic RfD or RfC based on a subchronic rather than a chronic study, or derivation of an RfD or RfC from the LOAEL rather than the NOAEL. In addition to these uncertainty factors, modifying factors between 1 and 10 may be applied to reflect additional qualitative considerations in evaluating the data. For most compounds, the modifying factor is one.

Dermal toxicity factors are based on route-to-route extrapolation (oral to dermal) for systemic effects as described in EPA RAGS E (EPA, 2004). To derive the dermal RfD, the oral RfD (based on an administered dose) is multiplied by the gastrointestinal tract absorption efficiency factor to determine an RfD based on an absorbed dose rather than an administered dose. The resulting dermal RfD is used to evaluate the dermal (absorbed) dose calculated by the dermal exposure algorithms.

Oral RfDs for the COPCs for the Site are presented in Appendix A, Table A-5.1. Dermal RfDs and the absorption efficiencies used in their determination are also included in Appendix A, Table A-5.1. The absorption efficiencies were obtained from EPA's Table 4.1, "Summary of Gastrointestinal Absorption Efficiencies and Recommendations for Adjustment of Oral Slope Factors for Specific Compounds" in *RAGS HHEM, Part E, Supplemental Guidance for Dermal Risk Assessment* (EPA, 2004). Inhalation RfCs for the COPCs are presented in Appendix A, Table A-5.2. The tables also include the primary target organs affected by each listed chemical, where information is available. This information may be used in the risk characterization (Section 6.0) to segregate risks by target organ effects when the total Hazard Index is greater than 1.0.

Chemical-Specific Considerations

For non-carcinogenic risk, oral RfDs are available for two PCB commercial Aroclor formulations, Aroclor 1016 and Aroclor 1254. The oral RfD for Aroclor 1016 is 7.00×10^{-5} mg/Kg-day and the oral RfD for Aroclor 1254 is 2.00×10^{-5} mg/Kg-day. PCBs were characterized as Aroclors 1254 and 1260. The RfD for Aroclor 1254 was used for the non-cancer hazard evaluation for Aroclor 1254. Non-cancer risks from Aroclor 1260 were not evaluated.

The toxicity and non-cancer risk characterization for dioxins were evaluated through use of dioxin TEQs in conjunction with the toxicity value for 2,3,7,8-TCDD in determining non-cancer risk. At this time, EPA has not yet derived a Tier 1 or Tier 2 non-cancer toxicity value for dioxin. In the absence of a Tier 1 or Tier 2 value, this risk assessment uses the currently available non-cancer toxicity values of Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRL) and California EPA Reference Exposure Levels (REL) to evaluate non-cancer dioxin risk. These values have not been endorsed as Tier 3 values. EPA's dioxin reassessment has been developed and undergone review over many years with the participation of scientific experts in EPA and other federal agencies, as well as scientific experts in the private sector and academia. The Agency followed current cancer guidelines and incorporated the latest data and physiological/biochemical research into the assessment. When the EPA's dioxin reassessment is finalized, the non-cancer risks will be re-evaluated.

The toxicity and non-cancer risk characterization for total chromium were evaluated through use of hexavalent chromium RfDs and RfCs to be conservative.

Toxicity values for vanadium compounds are available from EPA for vanadium pentoxide (IRIS – EPA, 2010a and PPRTV – EPA, 2008b), vanadium sulfate (HEAST – EPA, 1997b), vanadium and compounds (RSL tables – EPA, 2009a), metallic vanadium (PPRTV – EPA, 2009d) and (ATSDR, 2009). The toxicity values for metallic vanadium are the most conservative (associated with the greatest risk levels) and result in risk estimates approximately two orders of magnitude greater than risk estimates which would result if toxicity values for other forms of vanadium are used to evaluate risk. However, vanadium does not normally exist in the environment in the metallic form. Because it has multiple valance states, it tends to form compounds with other ions. Vanadium is a component of fossil fuels. When fossil fuels are burned, as Scovill Industries did for its operations (power, heat, etc.), vanadium can be present in the ash. This is the likely source of the detected vanadium at the Scovill Landfill Site.

Because vanadium in the environment exists in a variety of oxidation states and is unlikely to be in its metallic form, toxicity values consistent with non-metallic vanadium were selected for the HHRA risk calculations. The RfD for vanadium and compounds was derived from the RfD for vanadium pentoxide (IRIS, 2010a) using a molecular weight adjustment factor per Section 5.4 of the EPA RSL User's Guide (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm). An RfC for vanadium and compounds was calculated

from the RfC for vanadium pentoxide (PPRTV – EPA, 2008b), using the same methodology as the RfD.

The oral RfD toxicity value for vanadium, used in this HHRA, is derived from the IRIS oral RfD for vanadium pentoxide by factoring out the molecular weight of the oxide ion. Vanadium pentoxide has a molecular weight of 181.88 grams per mole. The two atoms of vanadium contribute 56 percent of the molecular weight. Vanadium pentoxide's oral RfD of 9×10^{-3} mg/Kg-day multiplied by 56 percent gives a vanadium oral RfD of 5.04×10^{-3} mg/Kg-day. Similarly, the inhalation RfC toxicity value for vanadium, used in this HHRA, is derived from the PPRTV inhalation RfC for vanadium pentoxide by factoring out the molecular weight of the oxide ion. Vanadium pentoxide's inhalation RfC of 7×10^{-6} mg/m^3 multiplied by 56 percent gives a vanadium inhalation RfC of 3.9×10^{-6} mg/m^3.

Subchronic vanadium toxicity values were used in the estimation of hazard indices for the construction/utility worker scenario. HEAST (EPA, 1997b) adopted the chronic RfD as the subchronic RfD for vanadium pentoxide. Therefore, the adjusted chronic RfD was used as the subchronic RfD. A subchronic RfC for vanadium of 5.6×10^{-5} mg/m^3 was derived from the molecular weight adjustment (56 percent) of the PPRTV subchronic RfC for vanadium pentoxide (PPRTV – EPA, 2008b) of 1×10^{-4} mg/m^3.

5.2 Carcinogenic Effects

The toxicity information considered in the assessment of potential carcinogenic risks includes slope factors, unit risk factors, and a weight-of-evidence narrative consistent with *Guidelines for Carcinogenic Risk Assessment* (EPA, 2005). These revised guidelines use standard narrative descriptors (Carcinogenic to Humans, Likely to Be Carcinogenic to Humans, Suggestive Evidence of Carcinogenic Potential, Inadequate Information to Assess Carcinogenic Potential, and Not Likely to Be Carcinogenic to Humans) to describe the likelihood that a chemical is a human carcinogen and are based on an evaluation of the available data from human and animal studies.

The CSF is a plausible upper bound estimate of carcinogenic potency used to calculate cancer risk from exposure to carcinogens, by relating estimates of lifetime average chemical intake to the incremental probability of an individual developing cancer over a lifetime.

Slope factors are derived from studies of carcinogenicity in humans and/or laboratory animals. For animal studies, preference is given to studies using the route of exposure of concern, in which normal physiologic function was not impaired, and in which exposure occurred during most of the animal's lifetime. Exposure and pharmacokinetic considerations are used to estimate equivalent human doses for computation of the CSF. When a number of studies of similar quality are available, the data may be combined in the derivation of the CSF. CSFs are typically calculated for compounds described as carcinogenic to humans and likely to be carcinogenic to humans, although some compounds described as having suggestive evidence of carcinogenic potential also have slope factors and some likely carcinogens, such as lead, have none. CSFs are not derived for chemicals described as having inadequate information to assess carcinogenic potential or chemicals described as not likely to be carcinogenic to humans. Slope factors are specific to a chemical and route of exposure and are expressed in units of $(mg/Kg\text{-}day)^{-1}$ for oral routes.

In the absence of dermal toxicity values, route-to-route extrapolation from oral to dermal route of systemic toxicants is used to account for the fact that most oral toxicity values are based on administered dose.

Inhalation risks are determined through use of inhalation URFs (EPA, 2009b). An inhalation URF is an upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 $\mu g/m^3$ in air.

Oral CSFs for COPCs at the Site are presented in Appendix A, Table A-6.1. Dermal CSFs and the absorption efficiencies used in their determination are also included in Appendix A, Table A-6.1. The absorption efficiencies were obtained from EPA's Table 4.1, "Summary of Gastrointestinal Absorption Efficiencies and Recommendations for Adjustment of Oral Slope Factors for Specific Compounds" in *RAGS HHEM, Part E, Supplemental Guidance for Dermal Risk Assessment* (EPA, 2004). Inhalation URFs for the COPCs are presented in Appendix A, Table A-6.2.

For carcinogens that act with a mutagenic mode of action for carcinogenesis, EPA recommends application of Age-Dependent Adjustment Factors (ADAFs) to the cancer slope factor to

address early lifetime exposures and the increased susceptibility of children to carcinogens (EPA, 2005). Further discussion is provided in Section 6.1.2.

Chemical-Specific Considerations

Risk estimates for PAHs have, in the past, assumed that all carcinogenic PAHs have a potency equal to that for benzo(a)pyrene. Although benzo(a)pyrene was well studied, other carcinogenic PAHs had insufficient data with which to calculate a CSF. EPA has published provisional guidance to assess PAHs (EPA, 1993). A peer review draft further evaluating this approach to the evaluation of PAHs is currently under review. Estimated orders of potential potency (rather than a toxicity equivalence factor or TEF) were developed based on skin painting tests and are rounded to one significant figure (based on an order of magnitude). The values are based on a comparable endpoint (complete carcinogenesis after repeated exposure to mouse skin). The quality of the data does not support any greater precision. The orders of potential potency used in this HHRA are presented in Appendix I and are those proposed for use by EPA Region 1 (EPA, 1994a). EPA has determined that the oral CSF for benzo(a)pyrene is 7.3 $(mg/Kg\text{-}day)^{-1}$. Oral CSFs for other carcinogenic PAHs were determined by multiplying the oral CSF for benzo(a)pyrene by the estimated order of potential potency for the PAH. These oral CSFs for PAHs became the basis for deriving the dermal CSFs used to evaluate dermal risk from PAHs.

The toxicity and cancer risk characterization for dioxins were evaluated through use of dioxin TEQs in conjunction with the toxicity value for 2,3,7,8-TCDD of $1.5 \times 10^{+5}$ (EPA, 1997b) in determining cancer risk. EPA's dioxin reassessment has been developed and undergone review over many years with the participation of scientific experts in EPA and other federal agencies, as well as scientific experts in the private sector and academia. The Agency followed current cancer guidelines and incorporated the latest data and physiological/biochemical research into the assessment. When the EPA’s dioxin reassessment is finalized, the cancer risks will be re-evaluated by EPA.

The toxicity and cancer risk characterization for total chromium were evaluated through use of hexavalent chromium CSFs and URFs to be conservative. Additional analysis is anticipated to speciate chromium or verify what percent of total chromium is hexavalent chromium and what percent is trivalent chromium.

An inhalation URF for vanadium pentoxide is available from EPA (PPRTV – EPA, 2008b). The inhalation URF for vanadium and compounds was calculated from the URF for vanadium pentoxide using the same methodology that is presented for the RfD in Section 5.4 of the RSL User's Guide. Vanadium pentoxide's inhalation URF of 8.3×10^{-3} $(\mu g/m^3)^{-1}$ was divided by 56 percent yielding a vanadium and compounds inhalation URF of 1.5×10^{-2} $(\mu g/m^3)^{-1}$.

The toxicity and cancer risk characterization for vinyl chloride were evaluated through use of CSFs and URFs for continuous lifetime exposure during adulthood. Cancer risk estimates for scenarios including childhood exposures were estimated using vinyl chloride specific cancer risk equations presented in Section 6.1.2.

6.0 RISK CHARACTERIZATION

This section provides a characterization of the potential human health risks associated with the potential exposure to COPCs in various media within the Site. Section 6.1 outlines the methods used to estimate the type and magnitude of health risks and Section 6.2 presents the risk characterization results for the current and potential future land use conditions within the Site.

6.1 Risk Characterization Methodology

Potential human health risks resulting from exposure to COPCs were estimated using algorithms established by EPA. The methods described by EPA are protective of human health and are likely to overestimate (rather than underestimate) risk. The methodology uses specific algorithms to calculate risk as a function of chemical concentration, human exposure parameters, and toxicity.

Risks from hazardous chemicals are calculated for either carcinogenic or non-carcinogenic effects. Some carcinogenic chemicals may also exhibit non-carcinogenic effects, in which case, potential impacts are characterized for both types of health effects.

6.1.1 Non-Cancer Effects

The hazards associated with non-cancer effects of COPCs are evaluated by comparing an ADD to an RfD or an ADC to an RfC. The ratio of the ADD to an RfD or an ADC to an RfC is called the hazard quotient (HQ) and is defined as follows (EPA, 1989a):

$$HQ = \frac{\text{ADD or ADC}}{\text{RfD or RfC}}$$

where:

HQ	=	Hazard Quotient (unitless)
ADD	=	Average daily dose (mg/Kg-day or mg/m^3), a function of exposure and chemical concentration
ADC	=	Average daily concentration (mg/m^3), a function of exposure and chemical concentration
RfD	=	Reference dose (mg/Kg-day)
RfC	=	Reference concentration (mg/m^3)

If the ratio of the ADD or ADC to the RfD or RfC exceeds 1.0, there exists a potential for non-carcinogenic (toxic) effects to occur. A Hazard Index (HI) is generated by summing the individual HQs for all COPCs. If the value of the HI exceeds 1.0, there is a potential for non-carcinogenic health effects associated with that particular chemical mixture, and therefore it is necessary to segregate the HQs by target organ effects. The HQ should not be construed as a probability, but rather as a numerical indicator of the extent to which a predicted intake exceeds or is less than an RfD or RfC.

6.1.2 Carcinogens

Risks attributable to exposure to chemical carcinogens are estimated as the probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. The incremental lifetime cancer risk (ILCR) is determined as follows (EPA, 1989a):

$$ILCR = \text{ADD or ADC} \times \text{CSF or URF}$$

where: ILCR = Incremental lifetime cancer risk, expressed as a unitless probability

ADD = Average daily dose (mg/Kg-day)

ADC = Average daily concentration ($\mu g/m^3$)

CSF = Cancer slope factor $(mg/Kg\text{-}day)^{-1}$

URF = Unit risk factor $(\mu g/m^3)^{-1}$

Risks below 1×10^{-6} (less than 1 in 1 million) are generally considered to be acceptable by EPA, and risks greater than 1×10^{-4} (1 in 10,000) are generally considered to be unacceptable. Risks between 1×10^{-6} and 1×10^{-4} are generally considered to be within EPA's targeted cancer risk range.

Risks are estimated for all carcinogenic COPCs with available CSFs or URFs, regardless of the narrative descriptors described in Section 5.2.

Carcinogens that act with a mutagenic mode of action

For carcinogens that act with a mutagenic mode of action for carcinogenesis, EPA recommends application of Age-Dependent Adjustment Factors (ADAFs) to the cancer slope factor to address early lifetime exposures and the increased susceptibility of children to carcinogens (EPA, 2005). As presented in the RSL Table (EPA, 2009a), the following COPCs exhibit a mutagenic mode of action for carcinogenesis:

Benzo(a)anthracene	Chrysene
Benzo(a)pyrene	Dibenz(a,h)anthracene
Benzo(b)fluoranthene	Indeno(1,2,3-cd)pyrene
Benzo(k)fluoranthene	Chromium (hexavalent form)

The ADAFs for specific age-groups classes are presented below:

Age (years)	ADAF (unitless)
0 – <2	10
2 – <16	3
≥16	1

RME Residential lifetime exposure factors were divided into two age groupings: child – 0 to 6 years and adult – 6 to 30 years. CTE Residential lifetime exposure factors were divided into two age groupings: 2 years as a child – 0 to 2 years and 7 years as an adult – 6 to 13 years. This discontinuous exposure pattern was selected in order to utilize the most conservative ADAFs for both the child and adult age groups. Potential risk to an individual resident was assessed using the information presented below.

Age (years)	Exposure Factors	Exposure Duration (years)	ADAF (unitless)
0 – <2	Child (RME or CTE)	2	10
2 – <6	Child (RME)	4	3
6 – <16	Adult (RME)	10	3
6 – <13	Adult (CTE)	7	3
16 – <30	Adult (RME)	14	1

Total Risk for RME lifetime exposures = Risk $_{0-<2}$ + Risk $_{2-<6}$ + Risk $_{6-<16}$ + Risk $_{16-<30}$

Total Risk for CTE lifetime resident exposures = Risk $_{0-<2}$ + Risk $_{6-<13}$

Potential risk to a recreational child visitor was assessed using the information presented below.

Age (years)	Exposure Factors	Exposure Duration (years)	ADAF (unitless)
0 – <2	Child	2	10
2 – <6	Child	4	3

Total Risk for RME child recreational exposures = Risk $_{0-<2}$ + Risk $_{2-<6}$

Total Risk for CTE child recreational exposures = Risk $_{0-<2}$

Potential risk to a day care child was assessed using the information presented below. The total risk to a day care child is the sum of the risks across applicable age groupings.

Age (years)	Exposure Factors	Exposure Duration (years)	ADAF (unitless)
1 – <2	Child (RME or CTE)	1	10
2 – <3	Child (CTE)	1	3
2 – <6	Child (RME)	4	3

Total Risk for RME day care child exposures = Risk $_{0-<2}$ + Risk $_{2-<6}$

Total Risk for CTE day care child exposures = Risk $_{0-<2}$+ Risk $_{2-<3}$

Potential risk to an adolescent trespasser was assessed using the information presented below.

Age (years)	Exposure Factors	Exposure Duration (years)	ADAF (unitless)
6 – <16	Adult	10	3

Total Risk for an adolescent trespasser exposures = Risk $_{6-<16}$

Appendix J presents the risk calculations for the COPCs with a mutagenic mode of action for carcinogenesis. These risks are then included in the Appendix A RAGS D tables.

Vinyl chloride

Vinyl chloride was identified as a COPC in aggregate soil at risk area E1. Several studies have provided evidence for early-life sensitivity to carcinogenesis associated with vinyl chloride exposure (EPA, 2000). This sensitivity is independent of later life chronic exposures. For this reason, the cancer risk equations for evaluation of vinyl chloride exposures in scenarios including young children differ from those of other contaminants and those used in adult only exposures. The lifetime cancer risk can be approximated by adding risks from the non-overlapping exposures in early life and later. The later-life exposure is prorated over the life span. The risk from early-life exposure is not prorated over exposure duration.

The following equation is used to evaluate lifetime residential child cancer risks from aggregate soil ingestion exposures to vinyl chloride:

$$\text{Risk} = \left(\text{ADD x CSF}\right) + \left(\frac{\text{CS x IR}_{c} \text{ x OABS x FI x CF}}{\text{BW}_{c}} \text{ x CSF}\right)$$

where:

ADD = Average daily dose of contaminant from soil (mg/Kg-day) (lifetime)

CS = Exposure concentration for soil (mg/Kg)

IR_c	=	Ingestion Rate during childhood (mg/day)
OABS	=	Oral Absorption factor
FI	=	Fraction Ingested from contaminated source (decimal fraction)
CF	=	Conversion Factor (10^{-6} kilogram per milligram (Kg/mg))
BW_c	=	Body Weight during childhood (Kg)
CSF	=	Cancer slope factor $(mg/Kg\text{-}day)^{-1}$

No dermal contact risks are estimated for vinyl chloride because there is no available dermal absorption factor.

The following equation is used to evaluate lifetime residential and recreational child cancer risks from soil vapor inhalation exposures to vinyl chloride:

$$\text{Risk} = \left(\text{ADC x URF}\right) + \left(\frac{\text{CS x CF}}{\text{VF}} \text{ x URF}\right)$$

where:

ADC	=	Average Daily Concentration ($\mu g/m^3$)
CS	=	Exposure concentration for soil (mg/Kg soil)
CF	=	Conversion factor (10^3 µg/mg)
VF	=	Volatilization factor (m^3/Kg)
URF	=	Unit risk factor $(\mu g/m^3)^{-1}$

6.1.3 Lead

Risks from lead exposure are not evaluated using the same methodology as other contaminants. The IEUBK Model and Technical Review Work Group Model for lead are used to address exposures to lead. These models estimate blood lead concentrations. Blood lead concentration is the most widely used index of internal lead body burdens associated with potential adverse health effects of lead. Studies indicate that infants and young children are extremely susceptible to adverse effects from exposure to lead. Considerable behavioral and developmental impairments have been noted in children with elevated blood lead levels. Since children are a more sensitive subpopulation than adults, exposure to lead by adults in a

residential or recreational scenario is not generally evaluated and the receptor of concern for these scenarios is the young child. Evaluation of the young child in a residential or recreation scenario is considered protective of adults, including pregnant women, and adolescents, including trespassers. Exposures to lead by industrial/commercial workers and groundskeepers are evaluated by use of an approach that focuses on estimating fetal blood lead concentrations in women exposed to lead-contaminated soil in non-residential scenarios. Therefore, the receptor of concern in industrial/commercial worker and groundskeeper scenarios is the fetus of the pregnant worker. Evaluation of the fetus of the pregnant worker is considered protective of non-pregnant workers, including those present less frequently than the typical full-time permanent industrial/commercial worker and groundskeeper, such as construction/utility workers. It has been determined that childhood blood lead concentrations at or above 10 µg/dL present risks to children's health. The EPA risk reduction goal for contaminated sites is to limit the probability of a child's blood lead concentration exceeding 10 µg/dL to 5 percent or less.

Potential residential child exposure to lead in surface or aggregate soil was evaluated using EPA's IEUBK model for lead in children (EPA, 1994b and 2007b). The IEUBK Model is designed to estimate blood levels of lead in children (under 7 years of age) based on either default or site-specific input values for air, drinking water, diet, dust, and soil exposure.

Exposures to lead in surface soil or aggregate soil by non-residential adults (industrial/ commercial workers or groundskeepers) were evaluated by use of the adult lead model (ALM), a slope-factor approach developed by the EPA Technical Review Work Group for Lead (TRW) (EPA, 2003a). The ALM slope factor approach focuses on estimating fetal blood lead concentrations in women exposed to lead-contaminated soil in non-residential scenarios. The ALM estimates the 95th percentile blood lead concentration among fetuses born to women having site exposures. In June 2009, the TRW updated the baseline blood lead concentration and the geometric standard deviation parameters in the ALM using data from the National Health and Nutrition Examination Survey (NHANES) surveys that were conducted from 1999-2004 (EPA, 2009e). These values are updates to the parameters based on Phase 1 and 2 of NHANES III that were provided by the TRW in 2002. The TRW recommends that the updated parameter values be used for all applications of the ALM where current and future use scenarios are addressed (EPA, 2009e). Both the 2002 and 2009 parameters are provided in the ALM spreadsheets for comparative purposes.

Concentrations (i.e., blood lead levels) calculated using both approaches are compared to the established blood lead level of concern of 10 µg/dL. An additional step in the process estimates the probability that blood lead levels will exceed 10 µg/dL. EPA's stated goal for lead is that individuals exposed would have no more than a 5 percent probability of exceeding the level of concern of 10 µg/dL.

EPCs, as well as default parameters for some input parameters, were used in the evaluations. Because the output of these models is a range of predicted blood lead concentrations, it is appropriate to input the average soil lead concentration rather than 95 percent UCL on the mean value. Entering a 95 percent UCL on the mean tends to bias the model outputs toward the high end, thus potentially overestimating risk. The EPCs selected for use in this evaluation are the arithmetic average soil lead concentrations for the exposure areas. The full detection limit is substituted for non-detected (U qualified) values in the calculation of the average lead concentrations. The input parameters used, the results of the lead models, and estimated blood lead levels are presented in Appendix K.

The results of the IEUBK model and adult lead exposure evaluations are discussed in Sections 6.2.1 through 6.2.10.

Because of recent scientific evidence that has demonstrated adverse health effects at blood lead concentrations below 10 µg/dL down to 5 µg/dL, and possibly lower, the EPA Office of Superfund Remediation and Technology Innovation (OSRTI) is developing a new soil lead policy to address this new information (EPA, 2009e). When the soil lead policy is finalized, lead risks will be re-evaluated.

6.2 Risk Characterization Results

A summary of the quantitative risk assessment for the Site is provided in this section.

Table 6.2-1 summarizes the RME and CTE non-cancer and cancer results, identifies primary contributors to cancer risks greater than 1×10^{-6} or hazard indices greater than 1.0 in the RME scenario, and summarizes the lead evaluation results for the each of the evaluated scenarios at each risk exposure area. Primary contributors to cancer risks greater than 1×10^{-6} or hazard indices greater than 1.0, are identified on Table 6.2-1. For these contaminants, estimated

cancer risks exceed 1×10^{-6} or hazard quotients exceed 1.0. Non-carcinogenic risks are evaluated separately for adult and child residents. Cancer risks for residents are evaluated for lifetime (age-adjusted) exposures.

Details of the risk estimates are presented in Appendix A, as follows:

- Appendix A, Tables A-7.1d1 RME through A-7.2j RME, present non-cancer and cancer RME risk estimates for each receptor and risk area.

- Appendix A, Tables A-7.1d1 CTE through A-7.2j CTE, present non-cancer and cancer CTE risk estimates for each receptor and risk area.

- Appendix A, Tables A-9.1d1 RME through A-9.2j RME present summaries of RME cancer risks and health hazard indices from all applicable media and pathways for each exposure scenario.

- Appendix A, Tables A-9.1d1 CTE through A-9.2j CTE present summaries of CTE cancer risks and health hazard indices from all applicable media and pathways for each exposure scenario.

- Appendix A, Tables A-10.1d1 RME through A-10.2j RME present summaries of RME cancer risks and health hazard indices from all applicable media and pathways for each exposure scenario for only the primary contributors to risk (individual contaminants with cancer risk greater than 1×10^{-6} or hazard indices greater than one).

- Appendix A, Tables A-10.1d1 CTE through A-10.2j CTE present summaries of CTE cancer risks and health hazard indices from all applicable media and pathways for each exposure scenario for only the primary contributors to risk (individual contaminants with cancer risk greater than 1×10^{-6} or hazard indices greater than one).

Because EPA is concerned with risks from total PCBs, an additional evaluation was done for total PCB concentrations; please see Appendix A, Table A-11. Sample calculations are provided in Appendix E. Results of the evaluation of estimated lead exposures are presented in Appendix K.

The following sections discuss risk area specific results, including hazard indices, cancer risks, and blood lead levels, if applicable.

6.2.1 Risk Area D1

Site receptors include current/future residents exposed to surface soil and current/future construction/utility workers and future residents exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area D1 are as follows:

Receptor (Timeframe)	RME	CTE
Adult Resident – surface soil (Current/Future)	0.13	0.069
Child Resident – surface soil (Current/Future)	1.1	0.55
Construction Worker – aggregate soil (Current/Future)	1.5	0.26
Adult Resident – aggregate soil (Future)	0.25	0.15
Child Resident – aggregate soil (Future)	1.8	0.93

RME HIs are greater than 1.0 for current/future and future child residents and current/future construction/utility workers at risk area D1; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HI is less than 1.0 for current/future and future adult residents. The CTE HIs are less than 1.0 for all scenarios. These results indicate that adverse non-carcinogenic health effects are unlikely for current/future and future residents and current/future construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area D1 are as follows:

Receptor (Timeframe)	RME	CTE
Age-Adjusted Lifetime Resident – surface soil (Current/Future)	1.7×10^{-4}	4.4×10^{-5}
Construction Worker – aggregate soil (Current/Future)	7.4×10^{-6}	1.4×10^{-6}
Age-Adjusted Lifetime Resident – aggregate soil (Future)	1.5×10^{-4}	3.9×10^{-5}

The RME cancer risk estimates for current/future and future residents at risk area D1 slightly exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). As detailed in Table 6.2-1, the major contributors to residential cancer risk from exposures to surface soil and aggregate soil at risk area D1 are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium. Vanadium is also a major contributor to residential risk from exposures to aggregate soils. Individual RME cancer risk estimates for each of these major contributors are greater than 1×10^{-6} under the age-adjusted lifetime residential scenarios.

The CTE cancer risk estimates for current/future and future residents at risk area D1 do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The RME and CTE cancer risk estimates for current/future construction/utility workers at risk area D1 do not exceed the EPA targeted cancer risk range.

Exposure to Lead

Lead was not selected as a COPC for either surface soils or aggregate soils in risk area D1.

6.2.2 Risk Area D3

Site receptors include current/future industrial/commercial workers exposed to surface soil and current/future construction/utility workers and future industrial/commercial workers exposed to aggregate soil.

Non-carcinogenic Risks

Hazard indices developed for the risk area D3 are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	0.12	0.051
Construction Worker – aggregate soil (Current/Future)	0.90	0.16
Industrial/Commercial Worker – aggregate soil (Future)	0.092	0.040

RME and CTE HIs are less than 1.0 for all scenarios at risk area D3. These results indicate that adverse non-carcinogenic health effects are unlikely for industrial/commercial workers or construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area D3 are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	3.7×10^{-5}	4.3×10^{-6}
Construction Worker – aggregate soil (Current/Future)	4.3×10^{-6}	6.0×10^{-7}
Industrial/Commercial Worker – aggregate soil (Future)	3.4×10^{-5}	3.8×10^{-6}

The RME and CTE cancer risk estimates for all scenarios at risk area D3 are less than or within the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposure to Lead

Lead was selected as a COPC for both surface soils and aggregate soils in risk area D3. The average lead concentration in the surface soil data set was 153 mg/Kg. The average lead concentration in the aggregate soil data set was 110 mg/Kg. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed

to surface soil at risk area D3 would be 2.9 µg/dL (Appendix K, Table K-3d3). The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to aggregate soil at risk area D3 would be 2.7 µg/dL (Appendix K, Table K-4d3). These estimates are less than EPA's established level of concern of 10 µg/dL. The probability that the fetal blood lead concentration exceeds 10 µg/dL is 0 percent for both the current/future industrial/commercial workers exposed to surface soil and the future industrial/commercial workers exposed to aggregate soil. EPA's target probability is 5 percent or less. The results of the ALM indicate that adverse effects are not anticipated for fetuses of pregnant workers exposed to lead in either surface soil or aggregate soil at risk area D3. In conclusion, exposures to lead in surface soil or aggregate soil at risk area D3 do not exceed EPA's target level of concern.

6.2.3 Risk Area E1

Site receptors include current/future adult residents, child recreational visitors, groundskeepers, and future child residents exposed to surface soil and current/future construction/utility workers and future residents including families exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area E1 are as follows:

Receptor (Timeframe)	RME	CTE
Adult Resident – surface soil (Current/Future)	0.12	0.062
Child Recreational Visitor – surface soil (Current/Future)	0.43	0.10
Groundskeeper – surface soil (Current/Future)	0.071	0.0070
Construction Worker – aggregate soil (Current/Future)	1.3	0.22
Child Resident – surface soil (Future)	0.96	0.48
Adult Resident – aggregate soil (Future)	0.23	0.14
Child Resident – aggregate soil (Future)	1.8	0.90

RME HIs are greater than 1.0 for current/future construction/utility workers and future child residents exposed to aggregate soils at risk area E1; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HIs are less than 1.0 for current/future and future

adult residents, current/future child recreational visitors and groundskeepers, and future child residents at risk area E1. The CTE HIs are less than 1.0 for all scenarios at risk area E1. These results indicate that adverse non-carcinogenic health effects are unlikely for residents, child recreational visitors, groundskeepers, and construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area E1 are as follows:

Receptor (Timeframe)	RME	CTE
Adult Resident – surface soil (Current/Future)	1.8×10^{-5}	2.3×10^{-6}
Child Recreational Visitor – surface soil (Current/Future)	7.8×10^{-5}	1.1×10^{-5}
Groundskeeper – surface soil (Current/Future)	1.4×10^{-5}	3.7×10^{-7}
Construction Worker – aggregate soil (Current/Future)	8.2×10^{-6}	1.4×10^{-6}
Age-Adjusted Lifetime Resident – surface soil (Future)	2.1×10^{-4}	5.4×10^{-5}
Age-Adjusted Lifetime Resident – aggregate soil (Future)	5.2×10^{-4}	1.3×10^{-4}

The RME cancer risk estimates for the future residents including families and CTE cancer risk estimates for the future residents including families exposed to aggregate soil at risk area E1 exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). As detailed in Table 6.2-1, the major contributors to residential cancer risk at risk area E1 are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium. Dioxins (TEQ), bis(2-chloroethyl)ether, hexachlorobenzene, n-nitrosodi-n-propylamine, and benzo(k)fluoranthene are also major contributors to residential risk from exposures to aggregate soils. Individual RME cancer risk estimates for each of these major contributors are greater than 1×10^{-6} under the age-adjusted lifetime residential scenario (including families).

The RME and CTE cancer risk estimates for current/future adult residents (assuming the housing remains restricted to elderly apartments), current/future child recreational visitors, current/future groundskeepers, and current/future construction/utility workers at risk area E1 and CTE cancer risk estimates for future residents including families exposed to surface soils at risk area E1 do not exceed the EPA targeted cancer risk range.

Exposure to Lead

Lead was not selected as a COPC for either surface soils or aggregate soils in risk area E1.

6.2.4 Risk Area E2

Site receptors include current/future day care children and industrial/commercial workers exposed to surface soil and current/future construction/utility workers and future industrial/commercial workers exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area E2 are as follows:

Receptor (Timeframe)	RME	CTE
Daycare Child – surface soil (Current/Future)	0.63	0.091
Industrial/Commercial Worker – surface soil (Current/Future)	0.071	0.032
Construction Worker – aggregate soil (Current/Future)	0.84	0.15
Industrial/Commercial Worker – aggregate soil (Future)	0.093	0.040

RME and CTE HIs are less than 1.0 for all scenarios at risk area E2. These results indicate that adverse non-carcinogenic health effects are unlikely for daycare children, industrial/commercial workers, or construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area E2 are as follows:

Receptor (Timeframe)	RME	CTE
Daycare Child – surface soil (Current/Future)	6.0×10^{-5}	4.5×10^{-6}
Industrial/Commercial Worker – surface soil (Current/Future)	1.0×10^{-5}	1.3×10^{-6}
Construction Worker – aggregate soil (Current/Future)	2.9×10^{-6}	4.5×10^{-7}
Industrial/Commercial Worker – aggregate soil (Future)	1.8×10^{-5}	2.0×10^{-6}

The RME and CTE cancer risk estimates for all scenarios at risk area E2 do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposure to Lead

Lead was selected as a COPC for aggregate soils only in risk area E2. The average lead concentration in this data set was 125 mg/Kg. In soil samples collected from 0 to 2 feet bgs within risk area E2, lead was not detected at concentrations exceeding the COPC selection criteria of 400 mg/Kg, and therefore was not considered a COPC for surface soil. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to aggregate soil at risk area E2 would be 2.8 µg/dL (Appendix K, Table K-4e2). This is less than EPA's established level of concern of 10 µg/dL. The probability that the fetal blood lead concentration exceeds 10 µg/dL is 0 percent. EPA's target probability is 5 percent or less. The results of the ALM indicate that adverse effects are not anticipated for fetuses of pregnant workers exposed to lead in aggregate soil at risk area E2. In conclusion, exposures to lead in aggregate soil at risk area E2 do not exceed EPA's target level of concern.

6.2.5 Risk Area E3

Site receptors include current/future residents and groundskeepers exposed to surface soil and current/future construction/utility workers and future residents exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area E3 are as follows:

Receptor (Timeframe)	RME	CTE
Adult Resident – surface soil (Current/Future)	0.15	0.082
Child Resident – surface soil (Current/Future)	1.3	0.65
Groundskeeper – surface soil (Current/Future)	0.092	0.0093
Construction Worker – aggregate soil (Current/Future)	1.1	0.19
Adult Resident – aggregate soil (Future)	0.16	0.083
Child Resident – aggregate soil (Future)	1.3	0.67

RME HIs are slightly greater than 1.0 for current/future and future child residents and construction/utility workers at risk area E3; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HI is less than 1.0 for current/future and future adult residents and groundskeepers at risk area E3. The CTE HIs are less than 1.0 for all scenarios at risk area E3. These results indicate that adverse non-carcinogenic health effects are unlikely for current/future and future residents, current/future groundskeepers, and current/future construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area E3 are as follows:

Receptor (Timeframe)	RME	CTE
Age-Adjusted Lifetime Resident – surface soil (Current/Future)	2.2×10^{-4}	5.9×10^{-5}
Groundskeeper – surface soil (Current/Future)	1.5×10^{-5}	4.1×10^{-7}
Construction Worker – aggregate soil (Current/Future)	7.0×10^{-6}	1.2×10^{-6}
Age-Adjusted Lifetime Resident – aggregate soil (Future)	2.9×10^{-4}	8.2×10^{-5}

The RME cancer risk estimates for the current/future and future residents at risk area E3 exceed the EPA targeted cancer risk range (10-4 to 10-6). As detailed in Table 6.2-1, the major contributors to residential cancer risk at risk area E3 are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium. Individual RME cancer risk estimates for each of these major contributors are greater than 1×10^{-6} under the age-adjusted lifetime residential scenarios.

RME cancer risk estimates for current/future groundskeepers and current/future construction/utility workers at risk area E3 and CTE cancer risk estimates for all scenarios at risk area E3 do not exceed the EPA targeted cancer risk range.

Exposure to Lead

Lead was selected as a COPC for aggregate soils only in risk area E3. The average lead concentration in this data set was 137 mg/Kg. In soil samples collected from 0 to 2 feet bgs

within risk area E3, lead was not detected at concentrations exceeding the COPC selection criteria of 400 mg/Kg, and therefore was not considered a COPC for surface soil. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

EPA's IEUBK model estimated that the 95th percentile blood lead concentration among future residential children exposed to aggregate soil at risk area E3 would be 2.5 µg/dL (Appendix K, Table K-2E3). These estimates are less than EPA's established level of concern of 10 µg/dL. The probability that the child's blood lead concentration exceeds 10 µg/dL is 0.14 percent for future residential children. EPA's target probability is 5 percent or less. In conclusion, exposures to lead in aggregate soil at risk area E3 do not exceed EPA's target level of concern.

6.2.6 Risk Area F

Site receptors include current/future residents exposed to surface soil and current/future construction/utility workers and future residents exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area F are as follows:

Receptor (Timeframe)	RME	CTE
Adult Resident – surface soil (Current/Future)	0.19	0.10
Child Resident – surface soil (Current/Future)	1.6	0.79
Construction Worker – aggregate soil (Current/Future)	1.3	0.23
Adult Resident – aggregate soil (Future)	0.23	0.12
Child Resident – aggregate soil (Future)	1.9	0.96

RME HIs are greater than 1.0 for current/future and future child residents and current/future construction/utility workers at risk area F; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HI is less than 1.0 for current/future and future adult residents at risk area F. The CTE HIs are less than 1.0 for all scenarios at risk area F. These results indicate that adverse non-carcinogenic health effects are unlikely for current/future and future residents and current/future construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area F are as follows:

Receptor (Timeframe)	RME	CTE
Age-Adjusted Lifetime Resident – surface soil (Current/Future)	2.1×10^{-4}	5.5×10^{-5}
Construction Worker – aggregate soil (Current/Future)	1.4×10^{-5}	2.6×10^{-6}
Age-Adjusted Lifetime Resident – aggregate soil (Future)	5.2×10^{-4}	1.5×10^{-4}

The RME cancer risk estimates for the current/future residents and both the RME and CTE cancer risk estimates for future residents at risk area F exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). As detailed in Table 6.2-1, the major contributors to residential cancer risk at risk area F are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium. Individual RME cancer risk estimates for each of these major contributors are greater than 1×10^{-6} under the age-adjusted lifetime residential scenarios.

CTE cancer risk estimates for current/future residents at risk area F and the RME and CTE cancer risk estimates for current/future construction/utility workers at risk area F do not exceed the EPA targeted cancer risk range.

Exposure to Lead

Lead was selected as a COPC for both surface soils and aggregate soils in risk area F. The average lead concentration in the surface soil data set was 145 mg/Kg. The average lead concentration in the aggregate soil data set was 150 mg/Kg. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

EPA's IEUBK model estimated that the 95th percentile blood lead concentration among current/future residential children exposed to surface soil at risk area F would be 2.5 µg/dL (Appendix K, Table K-1F). EPA's IEUBK model estimated that the 95th percentile blood lead concentration among future residential children exposed to aggregate soil at risk area F would be 2.6 µg/dL (Appendix K, Table K-2F). These estimates are less than EPA's established level

of concern of 10 µg/dL. The probability that the child's blood lead concentration exceeds 10 µg/dL is 0.18 percent for current/future residential children and 0.21 percent for future residential children. EPA's target probability is 5 percent or less. In conclusion, exposures to lead in either surface or aggregate soil at risk area F do not exceed EPA's target level of concern.

6.2.7 Risk Area G

Site receptors include current/future industrial/commercial workers exposed to surface soil and current/future construction/utility workers and future industrial/commercial workers exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area G are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	0.40	0.17
Construction Worker – aggregate soil (Current/Future)	2.1	0.33
Industrial/Commercial Worker – aggregate soil (Future)	0.36	0.15

RME HIs are greater than 1.0 for current/future construction/utility workers at risk area G; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HI is less than 1.0 for current/future and future industrial/commercial workers. The CTE HIs are less than 1.0 for all scenarios at risk area G. These results indicate that adverse non-carcinogenic health effects are unlikely for current/future and future industrial/commercial workers and current/future construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area G are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	3.2×10^{-5}	4.4×10^{-6}
Construction Worker – aggregate soil (Current/Future)	6.3×10^{-6}	1.1×10^{-6}
Industrial/Commercial Worker – aggregate soil (Future)	2.1×10^{-5}	2.8×10^{-6}

The RME and CTE cancer risk estimates for all scenarios at risk area G do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposure to Lead

Lead was selected as a COPC for both surface soils and aggregate soils in risk area G. The average lead concentration in the surface soil data set was 893 mg/Kg. The average lead concentration in the aggregate soil data set was 775 mg/Kg. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to surface soil at risk area G would be 5.4 µg/dL (Appendix K, Table K-3g). The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to aggregate soil at risk area G would be 5.0 µg/dL (Appendix K, Table K-4g). These estimates are less than EPA's established level of concern of 10 µg/dL. The probability that the fetal blood lead concentration exceeds 10 µg/dL is 0.4 percent for current/future industrial/commercial workers exposed to surface soil and 0.2 percent for future industrial/commercial workers exposed to aggregate soil. EPA's target probability is 5 percent or less. The results of the ALM indicate that adverse effects are not anticipated for fetuses of pregnant workers exposed to lead in either surface soil or aggregate soil at risk area G. In conclusion, exposures to lead in surface soil or aggregate soil at risk area G do not exceed EPA's target level of concern.

6.2.8 Risk Area H

Site receptors include current/future industrial/commercial workers exposed to surface soil and current/future construction/utility workers and future industrial/commercial workers exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area H are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	0.081	0.036
Construction Worker – aggregate soil (Current/Future)	1.5	0.27
Industrial/Commercial Worker – aggregate soil (Future)	0.17	0.074

The RME HI is greater than 1.0 for current/future construction/utility workers at risk area H; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HI is less than 1.0 for current/future and future industrial/commercial workers at risk area H. The CTE HIs are less than 1.0 for all scenarios at risk area H. These results indicate that adverse non-carcinogenic health effects are unlikely for current/future and future industrial/commercial workers and current/future construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area H are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	2.8×10^{-5}	3.1×10^{-6}
Construction Worker – aggregate soil (Current/Future)	5.7×10^{-6}	7.6×10^{-7}
Industrial/Commercial Worker – aggregate soil (Future)	5.1×10^{-5}	5.6×10^{-6}

The RME and CTE cancer risk estimates for all scenarios at risk area H do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposure to Lead

Lead was selected as a COPC for aggregate soils only in risk area H. The average lead concentration in this data set was 400 mg/Kg. In soil samples collected from 0 to 2 feet bgs within risk area H, lead was not detected at concentrations exceeding the COPC selection criteria of 400 mg/Kg, and therefore was not considered a COPC for surface soil. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to aggregate soil at risk area H would be 3.7 µg/dL (Appendix K, Table K-4h). This is less than EPA's established level of concern of 10 µg/dL. The probability that the fetal blood lead concentration exceeds 10 µg/dL is 0 percent. EPA's target probability is 5 percent or less. The results of the ALM indicate that adverse effects are not anticipated for fetuses of pregnant workers exposed to lead in aggregate soil at risk area H. In conclusion, exposures to lead in aggregate soil at risk area H do not exceed EPA's target level of concern.

6.2.9 Risk Area I

Site receptors include current/future industrial/commercial workers exposed to surface soil and current/future construction/utility workers and future industrial/commercial workers exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area I are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	0.12	0.052
Construction Worker – aggregate soil (Current/Future)	1.1	0.19
Industrial/Commercial Worker – aggregate soil (Future)	0.16	0.072

The RME HI is greater than 1.0 for current/future construction/utility workers at risk area I; however, no individual contaminant HQ or organ-specific HI exceeds 1.0. The RME HI is less

than 1.0 for current/future and future industrial/commercial workers at risk area I. The CTE HIs are less than 1.0 for all scenarios at risk area I. These results indicate that adverse non-carcinogenic health effects are unlikely for current/future and future industrial/commercial workers and current/future construction/utility workers, even under the estimated maximum exposure conditions.

Carcinogenic Risks

Cancer Risks developed for the risk area I are as follows:

Receptor (Timeframe)	RME	CTE
Industrial/Commercial Worker – surface soil (Current/Future)	3.6×10^{-5}	3.9×10^{-6}
Construction Worker – aggregate soil (Current/Future)	2.0×10^{-5}	1.7×10^{-6}
Industrial/Commercial Worker – aggregate soil (Future)	3.3×10^{-4}	3.3×10^{-5}

The RME cancer risk estimates for the future industrial/commercial workers at risk area I exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). As detailed in Table 6.2-1, the major contributors to industrial/commercial worker cancer risk from exposure to aggregate soils at risk area I are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium. Individual RME cancer risk estimates for each of these major contributors are greater than 1×10^{-6} under the future industrial/commercial worker scenario.

CTE cancer risk estimates for future industrial/commercial workers at risk area I and the RME and CTE cancer risk estimates for current/future industrial/commercial workers and current/future construction/utility workers at risk area I do not exceed the EPA targeted cancer risk range.

Exposure to Lead

Lead was selected as a COPC for aggregate soils only in risk area I. The average lead concentration in this data set was 156 mg/Kg. In soil samples collected from 0 to 2 feet bgs within risk area I, lead was not detected at concentrations exceeding the COPC selection

criteria of 400 mg/Kg, and therefore was not considered a COPC for surface soil. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to aggregate soil at risk area I would be 2.9 µg/dL (Appendix K, Table K-4i). This is less than EPA's established level of concern of 10 µg/dL. The probability that the fetal blood lead concentration exceeds 10 µg/dL is 0 percent. EPA's target probability is 5 percent or less. The results of the ALM indicate that adverse effects are not anticipated for fetuses of pregnant workers exposed to lead in aggregate soil at risk area I. In conclusion, exposures to lead in aggregate soil at risk area I do not exceed EPA's target level of concern.

6.2.10 Risk Area J

Site receptors include current/future trespassers exposed to surface soil, sediment, and surface water; future residents and industrial/commercial workers exposed to surface soil; and future residents, industrial/commercial workers, groundskeepers, and construction/utility workers exposed to aggregate soil.

Non-Carcinogenic Risks

Hazard indices developed for the risk area J are as follows:

Receptor (Timeframe)	RME	CTE
Trespasser – Total* (Current/Future)	3.5	0.38
Adult Resident – surface soil (Future)	8.1	4.0
Child Resident – surface soil (Future)	73	36
Industrial/Commercial Worker – surface soil (Future)	5.9	2.4
Adult Resident – aggregate soil (Future)	2.3	1.2
Child Resident – aggregate soil (Future)	21	10
Industrial/Commercial Worker – aggregate soil (Future)	1.7	0.70
Groundskeeper – aggregate soil (Future)	1.5	0.14
Construction Worker – aggregate soil (Future)	7.5	1.1

*Total risks for trespassers include exposures to surface soil, sediment, and surface water.

RME and CTE HIs are greater than 1.0 for future adult and child residents exposed to either surface soils or aggregate soils, industrial/commercial workers exposed to surface soil, and construction/utility workers. RME HIs, but not CTE HIs, are also greater than 1.0 for current/future trespassers, industrial/commercial workers exposed to aggregate soil, and future groundskeepers. Chromium in soil is the primary contributor to the total HI for current/future trespassers. Chromium is also the primary contributor to the total HIs for future adult residents and future industrial/commercial workers exposed to aggregate soil, future groundskeepers, and future construction/utility workers. Aroclor 1254 and chromium are the primary contributors to the total HIs for future adult residents and future industrial/commercial workers exposed to surface soil, and future child residents exposed to aggregate soil. Aroclor 1254, chromium, and nickel are the primary contributors to the total HIs for future child residents exposed to surface soil. The primary target organs for Aroclor 1254 are the eyes and the immune system. The primary target organ for both chromium and nickel when exposure occurs through inhalation is the respiratory system. Adverse effects to these organs are possible.

Carcinogenic Risks

Cancer Risks developed for the risk area J are as follows:

Receptor (Timeframe)	RME	CTE
Trespasser – Total (Current/Future)	1.7×10^{-3}	2.0×10^{-4}
Age-Adjusted Lifetime Resident – surface soil (Future)	4.8×10^{-2}	1.5×10^{-2}
Industrial/Commercial Worker – surface soil (Future)	2.5×10^{-3}	4.1×10^{-4}
Age-Adjusted Lifetime Resident – aggregate soil (Future)	1.3×10^{-2}	4.1×10^{-3}
Industrial/Commercial Worker – aggregate soil (Future)	7.0×10^{-4}	1.1×10^{-4}
Groundskeeper – aggregate soil (Future)	6.3×10^{-4}	2.3×10^{-5}
Construction Worker – aggregate soil (Future)	4.4×10^{-4}	8.2×10^{-5}

*Total risks for trespassers include exposures to surface soil, sediment, and surface water.

The RME and CTE cancer risk estimates for current/future trespassers, future residents, and future industrial/commercial workers exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The RME, but not the CTE, cancer risk estimates for future groundskeepers and construction/utility workers exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). As detailed in Table 6.2-1, the major contributors to trespasser cancer risk at risk area J are

Aroclor 1254, benzo(a)pyrene, dibenz(a,h)anthracene, and chromium in soil; with contributions from benzo(a)pyrene, dibenz(a,h)anthracene, and chromium in sediment; and benzo(a)pyrene in surface water. The major contributors to future resident and industrial/commercial worker cancer risk from exposures to surface soil at risk area J are benzo(a)anthracene, benzo(a)pyrene, dibenz(a,h)anthracene, Aroclor 1254, arsenic, and chromium; with benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, Aroclor 1260, and vanadium also identified as contributors to risk for future residents. The major contributors to future resident, industrial/commercial worker, and groundskeeper cancer risk from exposures to aggregate soil at risk area J are dioxin TEQs, benzo(a)pyrene, dibenz(a,h)anthracene, Aroclor 1254, arsenic, and chromium; with benzo(a)anthracene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene, and Aroclor 1260 also identified as contributors to risk for future residents. The major contributors to construction/utility worker cancer risk at risk area J are chromium and vanadium. Individual RME cancer risk estimates for each of these major contributors are greater than 1×10^{-6} under the specified scenarios.

Exposure to Lead

Lead was selected as a COPC for both surface soils and aggregate soils in risk area J. The average lead concentration in the surface soil data set was 168 mg/Kg. The average lead concentration in the aggregate soil data set was 132 mg/Kg. As stated in Section 6.1.3, average lead concentrations are used as EPCs in the lead models.

EPA's IEUBK model estimated that the 95th percentile blood lead concentration among future residential children exposed to surface soil at risk area J would be 2.8 µg/dL (Appendix K, Table K-1J). EPA's IEUBK model estimated that the 95th percentile blood lead concentration among future residential children exposed to aggregate soil at risk area J would be 2.4 µg/dL (Appendix K, Table K-2J). These estimates are less than EPA's established level of concern of 10 µg/dL. The probability that the child's blood lead concentration exceeds 10 µg/dL is 0.35 percent for future residential children exposed to surface soil and 0.12 percent for future residential children exposed to aggregate soil. EPA's target probability is 5 percent or less. In conclusion, exposures to lead in either surface or aggregate soil at risk area J do not exceed EPA's target level of concern for future residents.

The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers exposed to surface soil at risk area J would be 2.9 µg/dL (Appendix K, Table K-3j). The ALM slope-factor approach developed by the EPA TRW estimated that the 95th percentile blood lead concentration among fetuses born to women industrial/commercial workers or groundskeepers exposed to aggregate soil at risk area J would be 2.8 µg/dL (Appendix K, Table K-4j). These estimates are less than EPA's established level of concern of 10 µg/dL. The probability that the fetal blood lead concentration exceeds 10 µg/dL is 0 percent for both the future industrial/commercial workers exposed to surface soil and the future industrial/commercial workers or groundskeepers exposed to aggregate soil. EPA's target probability is 5 percent or less. The results of the ALM indicate that adverse effects are not anticipated for fetuses of pregnant workers exposed to lead in either surface soil or aggregate soil at risk area J. In conclusion, exposures to lead in surface soil or aggregate soil at risk area J do not exceed EPA's target level of concern for future industrial/commercial workers or groundskeepers.

Lead was also identified as a COPC in sediment; however, no quantitative evaluation of lead in sediment was performed. As noted in Section 6.1.3, average concentrations are used as inputs to the lead models. The average lead concentration in the sediment data set was 324 mg/Kg. Because this concentration is below the 400 mg/Kg concentration typically considered the target soil lead concentration for residential properties where young children, who are the most sensitive receptors for lead toxicity, are present; this lead concentration in sediment is unlikely to pose a risk to adolescent trespassers potentially exposed to sediment at the Site on a less frequent basis. EPA's TRW developed the *Assessing Intermittent or Variable Exposure at Lead Site* guidance in November, 2003. The TRW identifies that the methodology presented in this guidance may be appropriate for assessment of lead risks for less frequent exposures connected with recreational activity or trespassing scenarios.

7.0 UNCERTAINTIES ANALYSIS

There are uncertainties and variability associated with all HHRAs. This section summarizes these uncertainties and provides a qualitative assessment of whether the uncertainties may over or underestimate risks.

Although there are various sources of uncertainty throughout the risk assessments, assumptions were made to provide conservative estimates that are protective of public health such that the risk estimates are unlikely to underestimate potential risks.

Once the risk calculations are complete, the results must be viewed considering the uncertainties inherent in the process. An understanding of the risk assessment and associated uncertainties provides the risk manager with additional information for consideration in the risk management decision.

EPA guidance on risk assessment (EPA, 1992 and 1994a) requires risk assessors to use exposure and toxicity assumptions from the "high end" and the "central tendency" of their distributions. These values correspond to the RME and CTE scenarios. The RME is conceptually the “high end” exposure above the 90th percentile of the population distribution but not higher than the individual in the population with the highest exposure. The CTE reflects the central (average) estimates of exposure. Decisions in the Superfund program are based on the RME risk.

Uncertainties within individual components of the HHRA for the Site are discussed below.

7.1 Uncertainty in Data Evaluation

Conservative screening values were used to select COPCs; thus, it is unlikely that any contaminant that may pose a risk was eliminated from the risk assessment calculations. There were chemicals detected for which screening values were not available because little or no information is available regarding the chemical’s toxicity. For these chemicals surrogate screening values were used qualitatively for screening. Based on the qualitative use of surrogate screening values, the chemicals without toxicity values were either eliminated as COPCs or eliminated from quantitative assessment because of the lack of toxicity values. Surrogate toxicity values were not used to calculate risk. Risks may be underestimated because of the lack of screening values. There are many chemicals that are not part of EPA’s list of routine analytes. Therefore, additional chemicals could be present that were not detected in the laboratory analysis that could increase potential risk.

A COPC was selected if the maximum detected concentration in soils, groundwater, sediments, or surface water exceeded its respective risk-based screening criterion. Frequency of detection was not used to eliminate COPCs. Even if the compound was detected at a very low frequency, i.e., less than 5 percent across the entire Site, the compound was still retained for evaluation at that parcel or risk area in the risk assessment if the maximum detected concentration within a parcel or risk area exceeded the screening criterion. Most of the COPCs identified as driving risk in the final risk estimates for each risk area or parcel (PAHs and metals) were detected in a majority of samples. The exceptions to this are the risk area E1 major contributors to risk, n-nitrosodi-n-propylamine, hexachlorobenzene, and bis(2-chloroethyl)ether, each detected in only 1 of 22 aggregate soil samples at risk area E1. Based on this review of the data, not using frequency of detection as a COPC selection criterion is unlikely to have affected the risk estimates.

Total chromium was selected as a COPC based on screening criteria for the more toxic hexavalent chromium form. Chromium speciation data were collected in March and April 2011, and are presented in the RI. The speciation data indicate total chromium detected at the Site contains 1.54 percent hexavalent chromium. The assumption that the measured total chromium represents hexavalent chromium greatly overestimates risks from total chromium. Since only the hexavalent form of chromium is considered carcinogenic, Table 7-1 presents a summary of total RME cancer risks with the total chromium cancer risks adjusted to reflect 1.54 percent of the calculated chromium risks in each risk area and each scenario and total Site risks for each risk area and each scenario reduced to include only hexavalent chromium risks.

7.2 Uncertainty in the Exposure Assessment

Uncertainty in the exposure assessment arises from the selection of receptors and selection of exposure parameters. Each is discussed below.

7.2.1 Exposure Point Concentrations (EPCs)

Based on the assumption that exposure occurs randomly across an exposure area, the 95 percent UCL of the mean concentration was used as a conservative estimate of the average concentration. Uncertainty arises from calculation of EPCs. The surface soil and aggregate soil data sets from some subparcels and sediment and surface water data sets from the Site consisted of relatively small numbers of samples for some or all contaminants. These small

data sets make the estimation of the upper 95 percent confidence limit on the mean somewhat uncertain. In cases where the number of samples was less than 8 or when the number of positive detections was less than 4 and the median value was greater than the maximum detected value, maximum detected concentrations were used as the EPC. Because of the limited number of samples in the surface soil data sets from risk areas D3, G, and I, the sediment data set, and the surface water data set, maximum detected concentrations were used to estimate risks. A single detection or small number of detections of a contaminant in small data sets can drive risk calculations. The use of maximum concentrations from infrequently detected contaminants likely results in an overestimate of risks from surface soil exposures at these locations, sediment exposures, and surface water exposures.

The use of aggregate soils collected from 0 to 10 feet bgs to estimate future risks to receptors which are not expected to disturb soils during their exposures may overestimate risks at developed areas where contamination is greater in subsurface soils if the soils are not redistributed during development or excavation. This applies to risk areas E1, E2, F, H, and I. If soils in these areas are not disturbed, future risks would be approximately the same as the current risk estimates based on surface soils.

As the result of weathering processes, PCB mixtures in the environment may not closely resemble the composition of commercial PCB Aroclors. If significant weathering of PCB mixtures has occurred in soil at this Site, the analytical method used for measuring total PCBs in soil (Aroclor method) may not be as accurate as other methods.

7.2.2 Exposure Scenarios and Receptor Identification

Exposure scenarios were selected for each exposure area to represent a range of current and future potential uses. The scenarios are conservative and likely to overestimate risk to individuals whose exposure occurs randomly across an exposure area.

The possible ingestion of home-grown fruits and vegetables pathway was not evaluated quantitatively. Although unlikely because of the small lot sizes and urban character of the area, future consumption of home-grown fruits and vegetables are possible at the non-Calabrese apartment complexes with open space (risk areas D1, E1, E3, and to a limited extent F) and future consumption of home-grown fruits and vegetables are possible at the Calabrese property

(risk area J) if it were developed for residential use. Risks from this pathway are likely to be relatively minor compared to direct contact with soils.

Uncertainty exists in the evaluation of the vapor intrusion pathway. Sporadic detections of volatile contaminants in shallow groundwater at concentrations exceeding vapor intrusion based screening levels indicate potential concern. The risks associated with vapor intrusions are more likely to overestimate than underestimate risk.

7.2.3 Selection of Exposure Parameters

Each exposure factor selected for use in this risk assessment has some associated uncertainty. The exposure estimate for the RME individual is obtained by combining estimates of likely "high-end" exposure factors with average factors. The resulting point estimate (or single value) is the reasonable maximum exposure. The RME risks are not likely to underestimate risk.

Ingestion and dermal absorption of soil are the most important routes of exposure for the potential site uses. Estimates of soil ingestion rates for both children and adults are based on a limited number of studies and were generally conducted for residential exposures. This limitation may result in an over or underestimate of potential risks.

7.3 Uncertainty in the Toxicological Evaluation

The toxicity values used in the quantitative assessment were those available in EPA databases.

7.3.1 Cancer Slope Factors (CSFs) and Inhalation Unit Risks (IURs)

CSFs and IURs are plausible upper-bound estimates of carcinogenic potency used to calculate cancer risk from exposure to carcinogens by relating estimates of lifetime average chemical intake to the incremental probability of an individual developing cancer over a lifetime as a result of exposure to site contaminants. Because the CSFs and IURs are upper-bound estimates, EPA is reasonably confident that the actual cancer risks are unlikely to be underestimated.

CSFs and IURs were not available for all chemicals. The lack of a CSF or IUR may underestimate risk.

7.3.2 Chronic Reference Doses (RfDs) and Chronic Reference Concentrations (RfCs)

The RfD and RfC represent estimates (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of deleterious effects during a lifetime.

The RfD for vanadium is based on the assumption that vanadium occurs in a non-metallic form as discussed in Section 5.1. Vanadium may be present in a variety of oxidation states. The toxicity value available for non-metallic vanadium may over or underestimate risks.

Non-cancer toxicity values were not available for all chemicals. The lack of an RfD or RfC may underestimate risk.

7.3.3 Subchronic Reference Doses

Subchronic toxicity values are applicable to short-term exposure to construction workers. A subchronic value for one chemical (vanadium) was assessed. For all other COPCs, chronic toxicity values were used which tend to overestimate risks.

7.3.4 Lead

Uncertainty is associated with evaluating exposures to lead. Exposures of residents to lead were evaluated by use of the IEUBK model. This model represents a conservative approach for predicting blood lead levels in children and is designed to overestimate risks. Exposures of industrial/commercial workers and groundskeepers to lead are evaluated by use of the EPA TRW ALM. This approach focuses on estimating fetal blood lead concentrations in women exposed to lead-contaminated soils in non-residential scenarios. Uncertainty is associated with estimating maternal blood lead concentrations and with the relationship between maternal blood lead concentrations and fetal blood lead concentrations. Use of these models to predict child, fetal, and maternal blood lead levels is a conservative approach and is also considered protective of non-pregnant women, men, and adolescents exposed to lead. Lead was identified as a COPC in sediment; however, no quantitative evaluation of lead in sediment was performed. EPA's TRW developed the *Assessing Intermittent or Variable Exposure at Lead Site* guidance

in November, 2003. The TRW identifies that the methodology presented in this guidance may be appropriate for assessment of lead risks for less frequent exposures connected with recreational activity or trespassing scenarios. Absence of a quantitative evaluation of lead in sediment may underestimate risks from lead; however, average lead concentrations in sediment are less than the lead concentration considered protective for residential properties, indicating that concentrations in sediment are not a concern.

Because of recent scientific evidence that has demonstrated adverse health effects at blood lead concentrations below 10 µg/dL down to 5 µg/dL, and possibly below, the EPA Office of Superfund Remediation and Technology Innovation (OSRTI) is developing a new soil lead policy to address this new information (EPA, 2009e). When the soil lead policy is finalized lead risks will be re-evaluated.

7.4 Uncertainty Associated with Risk Characterization

The conservative assumptions applied in conducting this risk assessment result in estimates that EPA is confident do not underestimate the potential risks.

Cancer risks are added to estimate the total incremental risk as a result of exposure to chemicals at the Site. Summing cancer risks may overestimate total risks. The lack of information on synergistic effects of multiple contaminants may underestimate risks and the lack of information on antagonistic effects may overestimate risks.

8.0 SUMMARY OF HUMAN HEALTH RISK ASSESSMENT

This section and Table 6.2-1 present a summary of the major risk assessment findings for the Site.

Soil exposures at ten risk areas were evaluated separately. Exposure scenarios varied by area. Sediment and surface water were also present on Site. Exposures to sediment and surface water were evaluated as part of risk area J. Table 6.2-1 presents the results. The following summaries focus only on RME HIs greater than 1.0 with individual contaminant HQs or organ-specific HIs exceeding 1.0, RME cancer risks exceeding EPA targeted cancer risk range (10^{-4} to 10^{-6}), lead evaluation results with the IEUBK model estimating the probability of a child's blood lead concentration exceeding 10 µg/dL to be 5 percent or greater or the ALM estimating

the probability of a fetal blood lead concentration exceeding 10 µg/dL to be 5 percent or greater. Primary contributors to cancer risks (exceeding 1×10^{-6}) and hazard indices (exceeding HQ of 1.0) identified for one or more receptors are also listed.

A qualitative evaluation of groundwater exposures through potential vapor intrusion was also conducted and is summarized below in Section 8.11.

8.1 Risk Area D1

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for the current/future and future residents slightly exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The major contributors to residential cancer risk at risk area D1 are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, chromium, and vanadium.

Lead was not selected as a COPC for either surface soils or aggregate soils in risk area D1; therefore, exposures to lead at risk area D1 are not a concern.

8.2 Risk Area D3

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for all scenarios at risk area D3 do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposures to lead at risk area D3 do not exceed EPA's target level of concern.

8.3 Risk Area E1

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for the future residents, assuming the elderly housing is converted to become housing for families and include children, exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The major contributors to residential cancer risk at risk area E1 are dioxins (TEQ), bis(2-chloroethyl)ether, hexachlorobenzene, n-nitrosodi-n-propylamine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium.

Lead was not selected as a COPC for either surface soils or aggregate soils in risk area E1; therefore, exposures to lead at risk area E1 are not a concern.

8.4 Risk Area E2

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for all scenarios at risk area E2 do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposures to lead at risk area E2 do not exceed EPA's target level of concern.

8.5 Risk Area E3

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for the current/future and future residents exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The major contributors to residential cancer risk at risk area E3 are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium.

Exposures to lead at risk area E3 do not exceed EPA's target level of concern.

8.6 Risk Area F

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for current/future and future residents exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The major contributors to cancer risk at risk area F are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium.

Exposures to lead at risk area F do not exceed EPA's target level of concern.

8.7 Risk Area G

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for all scenarios at risk area G do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposures to lead at risk area G do not exceed EPA's target level of concern.

8.8 Risk Area H

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for all scenarios at risk area H do not exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}).

Exposures to lead at risk area H do not exceed EPA's target level of concern.

8.9 Risk Area I

Estimated HIs indicated that adverse non-carcinogenic health effects are unlikely for the evaluated scenarios.

The cancer risk estimates for future industrial/commercial workers exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The major contributors to cancer risk at risk area I are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, arsenic, and chromium.

Exposures to lead at risk area I do not exceed EPA's target level of concern.

8.10 Risk Area J

Estimated HIs indicated potential adverse non-cancer effects for current/future trespassers, future construction/utility workers, future adult and child residents, industrial/commercial workers, and groundskeepers from exposures to Aroclor 1254, chromium, and nickel in soil. Chromium, assumed to be 100 percent hexavalent chromium for risk assessment purposes, was the dominant risk driver.

The cancer risk estimates for current/future trespassers, future residents, industrial/ commercial workers, groundskeepers, and construction/utility workers exceed the EPA targeted cancer risk range (10^{-4} to 10^{-6}). The greatest contributor to risk is chromium, assumed to be 100 percent hexavalent chromium for risk assessment purposes, in surface and aggregate soil. Other major contributors to cancer risk at risk area J in surface and aggregate soils are dioxin TEQs (aggregate only), benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, Aroclor 1254, Aroclor 1260, arsenic; and vanadium. Major contributors in sediment are benzo(a)pyrene, dibenz(a,h)anthracene, and chromium; and for surface water, benzo(a)pyrene.

Exposures to lead at risk area J do not exceed EPA's target level of concern.

8.11 Groundwater

Groundwater exposures were limited to potential vapor intrusion into indoor air spaces. This pathway was evaluated for Parcel A and Parcel B through comparison of inhalation risk-based screening criteria to shallow groundwater sampling results. Because this evaluation is not part of the quantitative risk calculations, results are not presented on Table 6.2-1. Based on the Tier 1 and Tier 2 evaluations (see Section 4.2.3), the vapor intrusion pathway was considered potentially complete. Chloroform, TCE, vinyl chloride, and mercury concentrations in shallow groundwater exceed the screening levels in Parcel A. Because of the sporadic nature of VOC detections in groundwater at the Site, potential indoor sources, and the building configurations, it is unlikely that further evaluation through subslab soil gas sampling or indoor air sampling would provide definitive answers. Therefore, preventative remedial action is recommended in risk area E1.

Shallow groundwater concentrations of vinyl chloride and mercury in Parcel B exceed screening levels. The vapor intrusion pathway is considered a potential future concern for Parcel B.

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TABLES

Table 1-1
Risk Areas
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Risk Areas	Type of Area	Impervious Surface	Structure	Comments
D1	Residential	Greater than 50%	Apartment building	
D3	Commercial	Greater than 50%	Multi story	Adjacent to former Scovill property, potentially within landfill limits
E1	Residential	Approximately 50%	Apartment building	Elderly housing; more sensitive population
E2	Commercial	Greater than 50%	Single story	Day care; more sensitive population
E3	Residential	Minimal or none	Apartment building	
F	Residential	Greater than 50%	Apartment building	
G	Commercial	Greater than 50%	Single story	
H	Commercial	Greater than 50%	Multi story	Mixed business usage and social club
I	Commercial	Greater than 50%	Single story	Shopping plaza
J	Open Space / Future Residential	Minimal or none	None	Fenced and capped area from PCB removal action and surrounding area identified as with area of landfill limits.

Table 2-1
Selection of Exposure Pathways
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Scenario Timeframe	Medium	Exposure	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/ Future	Soil	Soil	Surface Soil Risk Areas D1, E1, E3, F	Resident	Adult	Ingestion	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Adult Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
				Resident[1]	Child	Ingestion	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Area E1	Recreational visitor[2]	Adult	Ingestion	None	Adult Recreational visitors would present a scenario of lower risk than risks from residential exposures at this and other current residential properties; therefore risks from this scenario are not evaluated separately.
						Dermal	None	
						Inhalation	None	
					Child	Ingestion	Quant	Child Recreational visitors may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Recreational visitors may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Recreational visitors may be exposed to contaminated soil through contact with fugitive dust and
			Surface Soil Risk Areas E1, E3	Groundskeeper[3]	Adult	Ingestion	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Groundskeepers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Areas D3, E2, G, H, I	Industrial/Commercial Worker	Adult	Ingestion	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Area E2	Day Care Child	Child	Ingestion	Quant	Children at the Day Care may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Children at the Day Care may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Children at the Day Care may be exposed to contaminated soil through contact with fugitive dust and
			Surface Soil Risk Area J	Trespasser	Adolescent	Ingestion	Quant	Trespassers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Trespassers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Trespassers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Areas D1, D3, E1, E2, E3, F, G, H, I	Construction/Utility Worker[4]	Adult	Ingestion	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Dermal	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Inhalation	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through contact with fugitive dust and volatiles.
	Sediment	Sediment	Sediment at Wetland Area Risk Area J	Trespasser	Adolescent	Ingestion	Quant	Trespassers may be exposed to contaminated sediment through inadvertent contact.
						Dermal	Quant	Trespassers may be exposed to contaminated sediment through inadvertent contact.
	Surface Water	Surface Water	Surface Water at Wetland Area Risk Area J	Trespasser	Adolescent	Ingestion	None	Non-swimming scenario, therefore, ingestion is unlikely.
						Dermal	Quant	Trespassers may be exposed to contaminated surface water through inadvertent contact while wading.
	Groundwater	Indoor air modeled from shallow groundwater Parcel A	On-site buildings Parcel A	Resident	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
					Child	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
				Day Care Child	Child	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
				Industrial/Commercial Worker	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].

Table 2-1
Selection of Exposure Pathways
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Scenario Timeframe	Medium	Exposure	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Soil	Soil	Surface Soil Risk Area J	Resident	Adult	Ingestion	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Adult Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
					Child	Ingestion	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
				Industrial/Commercial Worker	Adult	Ingestion	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Areas D1, E1, E3, F, J	Resident	Adult	Ingestion	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Adult Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
					Child	Ingestion	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
		home-grown fruits and vegetables	Home-grown fruits and vegetables Risk Areas D1, E1, E3, F, J	Resident	Adult	Ingestion	Qual	Residents may be exposed to contaminants through ingestion of home-grown fruits and vegetables; however, risks are likely to be relatively minor compared to direct contact with soils. Therefore, risks from this pathway are not quantified. Such exposures are discussed in the uncertainty section.
					Child	Ingestion	Qual	
		Soil	All Soil (0-10 ft) Risk Area J	Groundskeeper	Adult	Ingestion	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Groundskeepers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Areas D3, E2, G, H, I, J	Industrial/Commercial Worker	Adult	Ingestion	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Area J	Construction/Utility Worker[4]	Adult	Ingestion	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Dermal	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Inhalation	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through contact with fugitive dust and volatiles.
	Groundwater	Indoor air modeled from shallow groundwater	Future on-site buildings Risk Area J	Resident	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
					Child	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
		Parcel B		Industrial/Commercial Worker	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].

Notes:

[1] Children are included in the evaluation of current/future residents at the elderly housing apartments of Risk Area E1 to address risks to future child residents should the current elderly apartments changeover to housing for all ages, without new development and resulting redistribution of deep soils.

[2] Current/future child recreational visitors are considered at this elderly housing subparcel with open space. Adult recreational visitors at this subparcel are not evaluated since these receptors would represent lower risks than the residential scenarios being evaluated. Adult and child recreational visitors at other current residential properties would present a scenario of lower risk than risks from the residential exposures being evaluated; therefore, risks from this scenario are not evaluated separately.

[3] Current/future groundskeepers are considered at the Risk Areas containing apartments and landscaping.

[4] Current/future Construction/Utility Workers are considered at all Risk Areas, except the fenced area of Risk Area J. Construction/Utility Workers are considered at Risk Area J under the future scenario.

[5] OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA, 2002).

Quant - Quantitative Analysis

Qual - Qualitative Analysis

Parcel A - Non-Calabrese Property, including Risk Areas D1,D3, E1, E2, E3, F, G, H, and I.

Parcel B - Calabrese Property, including Risk Area J.

Table 3.2-1
Contaminants of Potential Concern (COPCs) - Surface Soil (0-2 ft bgs)
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

COPC	Risk Area									
	D1	D3	E1	E2	E3	F	G	H	I	J
Dieldrin						√				
Dimethyl phthalate	√							√		√
Di-n-octyl phthalate			√	√	√	√			√	√
PAHs										
Benzo(a)anthracene	√	√	√	√	√	√	√	√	√	√
Benzo(a)pyrene	√	√	√	√	√	√	√	√	√	√
Benzo(b)fluoranthene	√	√	√	√	√	√	√	√	√	√
Benzo(k)fluoranthene	√	√			√	√		√	√	√
Carbazole	√	√	√	√	√	√	√	√	√	√
Dibenz(a,h)anthracene	√	√	√	√	√	√	√	√	√	√
Indeno(1,2,3-cd)pyrene	√	√	√	√	√	√	√	√	√	√
PCBs										
Aroclor-1254			√							√
Aroclor-1260										√
Metals										
Aluminum	√	√	√	√	√	√	√	√	√	√
Antimony				√			√			√
Arsenic	√	√	√	√	√	√	√	√	√	√
Cadmium						√	√		√	√
Chromium Total	√	√	√	√	√	√	√	√	√	√
Cobalt	√	√	√	√	√	√	√	√	√	√
Iron	√	√	√	√	√	√	√	√	√	√
Lead		√				√	√			√
Manganese	√	√	√	√	√	√	√	√		√
Mercury	√				√	√	√		√	√
Nickel							√			√
Thallium	√				√	√	√	√	√	√
Vanadium	√	√	√	√	√	√	√	√	√	√
Zinc						√	√			√

Table 3.2-2
Contaminants of Potential Concern (COPCs) - Aggregate Soil (0-10 ft bgs)
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

COPC	Risk Area									
	D1	D3	E1	E2	E3	F	G	H	I	J
Benzene									√	
bis(2-Chloroethyl)ether			√							
4-Bromophenyl phenyl ether			√							
n-Butylbenzene										√
sec-Butylbenzene										√
4-Chlorophenyl phenyl ether			√							
Cymene										√
Dibenzofuran									√	
Dieldrin						√				√
Dimethyl phthalate	√							√		√
Di-n-octyl phthalate	√		√	√	√	√			√	√
Dioxins/Furans										
2,3,7,8-TCDD TEQ			√	√						√
Hexachlorobenzene			√							
N-Nitrosodi-n-propylamine			√							
PAHs										
Benzo(a)anthracene	√	√	√	√	√	√	√	√	√	√
Benzo(a)pyrene	√	√	√	√	√	√	√	√	√	√
Benzo(b)fluoranthene	√	√	√	√	√	√	√	√	√	√
Benzo(g,h,i)perylene		√						√	√	
Benzo(k)fluoranthene	√	√	√	√	√	√		√	√	√
Carbazole	√	√	√	√	√	√	√	√	√	√
Chrysene									√	
Dibenz(a,h)anthracene	√	√	√	√	√	√	√	√	√	√
Indeno(1,2,3-cd)pyrene	√	√	√	√	√	√	√	√	√	√
Naphthalene									√	
PCBs										
Aroclor-1254	√		√							√
Aroclor-1260			√							√
Tetrachloroethene								√		
Trichloroethene								√		
Vinyl chloride			√							
Metals										
Aluminum	√	√	√	√	√	√	√	√	√	√
Antimony				√	√		√			√
Arsenic	√	√	√	√	√	√	√	√	√	√
Barium								√		
Cadmium				√		√	√	√	√	√
Chromium Total	√	√	√	√	√	√	√	√	√	√
Cobalt	√	√	√	√	√	√	√	√	√	√
Iron	√	√	√	√	√	√	√	√	√	√
Lead		√		√	√	√	√	√	√	√
Manganese	√	√	√	√	√	√	√	√	√	√
Mercury	√		√		√	√	√		√	√
Nickel	√						√			√
Silver									√	
Thallium	√				√	√	√	√	√	√
Vanadium	√	√	√	√	√	√	√	√	√	√
Zinc						√	√	√	√	√

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area D1 - Current/Future	Age-Adjusted Resident	Surface Soil	See child	Yes	1.7E-04	Benzo(a)anthracene	5.4E-06	NE	---		No	4.4E-05	NE
						Benzo(a)pyrene	6.2E-05						
						Benzo(b)fluoranthene	8.3E-06						
						Dibenz(a,h)anthracene	2.2E-05						
						Indeno(1,2,3-cd)pyrene	6.1E-06						
						Arsenic	1.1E-05						
						Chromium	5.2E-05						
	Adult Resident	Surface Soil	See child	No	NE	---		0.13	---		No	NE	0.069
	Child Resident	Surface Soil	Not a COPC	Yes	NE	---		1.1	---		No	NE	0.55
	Construction Worker	Aggregate Soil	NE	Yes	7.4E-06	Chromium	1.7E-06	1.5	---		No	1.4E-06	0.26
						Vanadium	5.1E-06						
Risk Area D1 - Future	Age-Adjusted Resident	Aggregate Soil	See child	Yes	1.5E-04	Benzo(a)anthracene	3.8E-06	NE	---		No	3.9E-05	NE
						Benzo(a)pyrene	5.9E-05						
						Benzo(b)fluoranthene	7.7E-06						
						Dibenz(a,h)anthracene	1.2E-05						
						Indeno(1,2,3-cd)pyrene	4.8E-06						
						Arsenic	9.7E-06						
						Chromium	5.0E-05						
						Vanadium	1.2E-06						
	Adult Resident	Aggregate Soil	See child	No	NE	---		0.25	---		No	NE	0.15
	Child Resident	Aggregate Soil	Not a COPC	Yes	NE	---		1.8	---		No	NE	0.93
Risk Area D3 - Current/Future	Industrial/ Commercial Worker	Surface Soil	0%	No	3.7E-05	Benzo(a)anthracene	1.8E-06	0.12	---		No	4.3E-06	0.051
						Benzo(a)pyrene	1.8E-05						
						Benzo(b)fluoranthene	2.7E-06						
						Dibenz(a,h)anthracene	1.5E-06						
						Arsenic	7.4E-06						
						Chromium	5.3E-06						
	Construction Worker	Aggregate Soil	NE	No	4.3E-06	Chromium	1.9E-06	0.90	---		No	6.0E-07	0.16
Risk Area D3 - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	No	3.4E-05	Benzo(a)anthracene	1.4E-06	0.092	---		No	3.8E-06	0.040
						Benzo(a)pyrene	1.6E-05						
						Benzo(b)fluoranthene	2.3E-06						
						Dibenz(a,h)anthracene	5.5E-06						
						Indeno(1,2,3-cd)pyrene	1.1E-06						
						Arsenic	4.7E-06						
						Chromium	3.0E-06						

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area E1 - Current/Future	Adult Resident (Elderly Only)	Surface Soil	See child	No	1.8E-05	Benzo(a)pyrene	7.8E-06	0.12	---		No	2.3E-06	0.062
						Arsenic	2.8E-06						
						Chromium	4.3E-06						
	Child Recreational Visitor	Surface Soil	Not a COPC	No	7.8E-05	Benzo(a)anthracene	4.7E-06	0.43	---		No	1.1E-05	0.10
						Benzo(a)pyrene	3.9E-05						
						Benzo(b)fluoranthene	2.7E-06						
						Dibenz(a,h)anthracene	4.5E-06						
						Indeno(1,2,3-cd)pyrene	2.2E-06						
						Arsenic	2.8E-06						
						Chromium	2.2E-05						
	Groundskeeper	Surface Soil	Not a COPC	No	1.4E-05	Benzo(a)pyrene	6.4E-06	0.071	---		No	3.7E-07	0.0070
						Arsenic	2.0E-06						
						Chromium	2.7E-06						
	Construction Worker	Aggregate Soil	NE	Yes	8.2E-06	Chromium	2.1E-06	1.3	---		No	1.4E-06	0.22
						Vanadium	4.2E-06						
Risk Area E1 - Future	Age-Adjusted Resident (Families)	Surface Soil	See child	Yes	2.1E-04	Benzo(a)anthracene	1.2E-05	NE	---		No	5.4E-05	NE
						Benzo(a)pyrene	1.0E-04						
						Benzo(b)fluoranthene	7.0E-06						
						Dibenz(a,h)anthracene	1.2E-05						
						Indeno(1,2,3-cd)pyrene	5.8E-06						
						Arsenic	9.0E-06						
						Chromium	5.8E-05						
	Child Resident	Surface Soil	Not a COPC	No	NE	---		0.96	---		No	NE	0.48
	Age-Adjusted Resident (Families)	Aggregate Soil	See child	Yes	5.2E-04	TEQ	2.5E-06	NE	---		Yes	1.3E-04	NE
						Bis(2-chloroethyl)ether	1.8E-06						
						Hexachlorobenzene	1.2E-06						
						N-Nitrosodi-n-propylamine	5.4E-06						
						Benzo(a)anthracene	3.7E-05						
						Benzo(a)pyrene	3.3E-04						
						Benzo(b)fluoranthene	4.8E-05						
						Benzo(k)fluoranthene	1.9E-06						
						Dibenz(a,h)anthracene	1.4E-05						
						Indeno(1,2,3-cd)pyrene	7.2E-06						
						Arsenic	8.6E-06						
						Chromium	6.2E-05						
	Adult Resident	Aggregate Soil	See child	No	NE	---		0.23	---		No	NE	0.14
	Child Resident	Aggregate Soil	Not a COPC	Yes	NE	---		1.8	---		No	NE	0.90

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area E2 - Current/Future	Daycare Child	Surface Soil	Not a COPC	No	6.0E-05	Benzo(a)anthracene	2.8E-06	0.63	---		No	4.5E-06	0.091
						Benzo(a)pyrene	2.4E-05						
						Benzo(b)fluoranthene	4.3E-06						
						Dibenz(a,h)anthracene	5.1E-06						
						Indeno(1,2,3-cd)pyrene	2.3E-06						
						Arsenic	3.0E-06						
						Chromium	1.9E-05						
	Industrial/ Commercial Worker	Surface Soil	Not a COPC	No	1.0E-05	Benzo(a)pyrene	3.9E-06	0.071	---		No	1.3E-06	0.032
						Arsenic	1.8E-06						
						Chromium	2.3E-06						
	Construction Worker	Aggregate Soil	NE	No	2.9E-06	Chromium	1.5E-06	0.84	---		No	4.5E-07	0.15
Risk Area E2 - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	No	1.8E-05	Benzo(a)pyrene	9.0E-06	0.093	---		No	2.0E-06	0.040
						Benzo(b)fluoranthene	1.2E-06						
						Arsenic	2.7E-06						
						Chromium	2.3E-06						
Risk Area E3 - Current/Future	Age-Adjusted Resident	Surface Soil	See child	Yes	2.2E-04	Benzo(a)anthracene	1.2E-05	NE	---		No	5.9E-05	NE
						Benzo(a)pyrene	9.5E-05						
						Benzo(b)fluoranthene	1.1E-05						
						Dibenz(a,h)anthracene	1.7E-05						
						Indeno(1,2,3-cd)pyrene	6.6E-06						
						Arsenic	1.1E-05						
						Chromium	6.9E-05						
	Adult Resident	Surface Soil	See child	No	NE	---		0.15	---		No	NE	0.082
	Child Resident	Surface Soil	Not a COPC	Yes	NE	---		1.3	---		No	NE	0.65
	Groundskeeper	Surface Soil	Not a COPC	No	1.5E-05	Benzo(a)pyrene	6.0E-06	0.092	---		No	4.1E-07	0.0093
						Dibenz(a,h)anthracene	1.1E-06						
						Arsenic	2.5E-06						
						Chromium	3.3E-06						
	Construction Worker	Aggregate Soil	NE	Yes	7.0E-06	Chromium	5.7E-06	1.1	---		No	1.2E-06	0.19

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area E3 - Future	Age-Adjusted Resident	Aggregate Soil	See child	Yes	2.9E-04	Benzo(a)anthracene	9.5E-06	NE	---		No	8.2E-05	NE
						Benzo(a)pyrene	7.4E-05						
						Benzo(b)fluoranthene	8.7E-06						
						Dibenz(a,h)anthracene	1.3E-05						
						Indeno(1,2,3-cd)pyrene	5.0E-06						
						Arsenic	1.3E-05						
						Chromium	1.7E-04						
	Adult Resident	Aggregate Soil	See child	No	NE	---		0.16	---		No	NE	0.083
	Child Resident	Aggregate Soil	0.14%	Yes	NE	---		1.3	---		No	NE	0.67
Risk Area F - Current/Future	Age-Adjusted Resident	Surface Soil	See child	Yes	2.1E-04	Benzo(a)anthracene	1.3E-05	NE	---		No	5.5E-05	NE
						Benzo(a)pyrene	7.1E-05						
						Benzo(b)fluoranthene	1.4E-05						
						Benzo(k)fluoranthene	1.4E-06						
						Dibenz(a,h)anthracene	2.4E-05						
						Indeno(1,2,3-cd)pyrene	5.2E-06						
						Arsenic	2.0E-05						
						Chromium	6.3E-05						
	Adult Resident	Surface Soil	See child	No	NE	---		0.19	---		No	NE	0.10
	Child Resident	Surface Soil	0.18%	Yes	NE	---		1.6	---		No	NE	0.79
	Construction Worker	Aggregate Soil	NE	Yes	1.4E-05	Chromium	1.2E-05	1.3	---		No	2.6E-06	0.23
						Vanadium	1.4E-06						
Risk Area F - Future	Age-Adjusted Resident	Aggregate Soil	See child	Yes	5.2E-04	Benzo(a)anthracene	1.1E-05	NE	---		Yes	1.5E-04	NE
						Benzo(a)pyrene	9.1E-05						
						Benzo(b)fluoranthene	1.2E-05						
						Benzo(k)fluoranthene	1.2E-06						
						Dibenz(a,h)anthracene	2.2E-05						
						Indeno(1,2,3-cd)pyrene	4.9E-06						
						Arsenic	1.9E-05						
						Chromium	3.6E-04						
	Adult Resident	Aggregate Soil	See child	No	NE	---		0.23	---		No	NE	0.12
	Child Resident	Aggregate Soil	0.21%	Yes	NE	---		1.9	---		No	NE	0.96
Risk Area G - Current/Future	Industrial/ Commercial Worker	Surface Soil	0.4%	No	3.2E-05	Benzo(a)pyrene	4.4E-06	0.40	---		No	4.4E-06	0.17
						Dibenz(a,h)anthracene	1.2E-06						
						Arsenic	1.3E-05						
						Chromium	1.2E-05						
	Construction Worker	Aggregate Soil	NE	Yes	6.3E-06	Chromium	4.5E-06	2.1	---		No	1.1E-06	0.33

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area G - Future	Industrial/ Commercial Worker	Aggregate Soil	0.2%	No	2.1E-05	Benzo(a)pyrene	3.3E-06	0.36	---		No	2.8E-06	0.15
						Arsenic	8.2E-06						
						Chromium	7.0E-06						
Risk Area H - Current/Future	Industrial/ Commercial Worker	Surface Soil	Not a COPC	No	2.8E-05	Benzo(a)anthracene	1.3E-06	0.081	---		No	3.1E-06	0.036
						Benzo(a)pyrene	1.4E-05						
						Benzo(b)fluoranthene	1.6E-06						
						Dibenz(a,h)anthracene	4.6E-06						
						Indeno(1,2,3-cd)pyrene	1.1E-06						
						Arsenic	2.4E-06						
						Chromium	2.8E-06						
	Construction Worker	Aggregate Soil	NE	Yes	5.7E-06	Benzo(a)pyrene	1.3E-06	1.5	---		No	7.6E-07	0.27
						Chromium	2.0E-06						
Risk Area H - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	No	5.1E-05	Benzo(a)anthracene	2.5E-06	0.17	---		No	5.6E-06	0.074
						Benzo(a)pyrene	2.6E-05						
						Benzo(b)fluoranthene	2.9E-06						
						Dibenz(a,h)anthracene	6.9E-06						
						Indeno(1,2,3-cd)pyrene	1.3E-06						
						Arsenic	8.8E-06						
						Chromium	3.1E-06						
Risk Area I - Current/Future	Industrial/ Commercial Worker	Surface Soil	Not a COPC	No	3.6E-05	Benzo(a)anthracene	2.1E-06	0.12	---		No	3.9E-06	0.052
						Benzo(a)pyrene	2.0E-05						
						Benzo(b)fluoranthene	3.5E-06						
						Dibenz(a,h)anthracene	2.7E-06						
						Arsenic	3.4E-06						
						Chromium	3.0E-06						
	Construction Worker	Aggregate Soil	NE	Yes	2.0E-05	Benzo(a)anthracene	1.3E-06	1.1	---		No	1.7E-06	0.19
						Benzo(a)pyrene	1.1E-05						
						Dibenz(a,h)anthracene	2.7E-06						
						Chromium	1.4E-06						
						Vanadium	1.5E-06						
Risk Area I - Future	Industrial/ Commercial Worker	Aggregate Soil	0%	Yes	3.3E-04	Benzo(a)anthracene	2.5E-05	0.16	---		No	3.3E-05	0.072
						Benzo(a)pyrene	2.1E-04						
						Benzo(b)fluoranthene	8.8E-06						
						Dibenz(a,h)anthracene	5.3E-05						
						Indeno(1,2,3-cd)pyrene	1.8E-05						
						Arsenic	6.2E-06						
						Chromium	2.2E-06						

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area J - Current/Future	Trespasser	Surface Soil	NE	Yes	1.7E-03	Benzo(a)pyrene	5.6E-06	3.4	Chromium	2.5	Yes	1.9E-04	0.36
						Dibenz(a,h)anthracene	1.8E-06						
						Aroclor 1254	3.9E-06						
						Chromium	1.6E-03						
		Sediment	NE	No	1.7E-05	Benzo(a)pyrene	5.9E-06	0.052	---		No	3.6E-06	0.011
						Dibenz(a,h)anthracene	1.1E-06						
						Chromium	7.9E-06						
		Surface Water	NE	No	6.8E-06	Benzo(a)pyrene	5.2E-06	0.021	---		No	2.4E-06	0.0053
		Total All Media			1.7E-03	see above		3.5	see above		Yes	2.0E-04	0.38
Risk Area J - Future	Age-Adjusted Resident	Surface Soil	See child	Yes	4.8E-02	Benzo(a)anthracene	1.5E-05	NE	---		Yes	1.5E-02	NE
						Benzo(a)pyrene	1.1E-04						
						Benzo(b)fluoranthene	1.2E-05						
						Dibenz(a,h)anthracene	3.4E-05						
						Indeno(1,2,3-cd)pyrene	7.5E-06						
						Aroclor 1254	5.2E-05						
						Aroclor 1260	2.7E-06						
						Arsenic	1.2E-05						
						Chromium	4.8E-02						
						Vanadium	1.1E-06						
	Adult Resident	Surface Soil	See child	Yes	NE	---		8.1	Aroclor 1254	1.2	Yes	NE	4.0
									Chromium	6.5			
	Child Resident	Surface Soil	0.35%	Yes	NE	---		73	Aroclor 1254	10	Yes	NE	36
									Chromium	60			
									Nickel	1.2			
	Industrial/ Commercial Worker	Surface Soil	0%	Yes	2.5E-03	Benzo(a)anthracene	1.1E-06	5.9	Aroclor 1254	1.1	Yes	4.1E-04	2.4
						Benzo(a)pyrene	7.4E-06		Chromium	4.6			
						Dibenz(a,h)anthracene	2.4E-06						
						Aroclor 1254	1.5E-05						
						Arsenic	3.0E-06						
						Chromium	2.5E-03						

Table 6.2-1
Summary of Receptor Risks and Hazards
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	Lead Model Results [1] % with blood lead level greater than 10 µg/dL	RME							CTE		
				CR>1E-04 or HI>1	Total Cancer Risks	Major contributors to total cancer risk (individual cancer risk >1E-06)	Individual COC cancer risks	Total Noncancer Hazard Index	Major contributors to noncancer Hazard Index above 1.0 (individual HQ>1.0)	Individual COC hazard quotient	CR>1E-04 or HI>1	Total Cancer Risks	Total Noncancer Hazard Index
Risk Area J - Future (cont.)	Age-Adjusted Resident	Aggregate Soil	See child	Yes	1.3E-02	TEQ	7.2E-06	NE	---		Yes	4.1E-03	NE
						Benzo(a)anthracene	1.0E-05						
						Benzo(a)pyrene	8.3E-05						
						Benzo(b)fluoranthene	9.7E-06						
						Dibenz(a,h)anthracene	1.9E-05						
						Indeno(1,2,3-cd)pyrene	6.8E-06						
						Aroclor 1254	1.0E-05						
						Aroclor 1260	1.2E-06						
						Arsenic	1.2E-05						
						Chromium	1.3E-02						
	Adult Resident	Aggregate Soil	See child	Yes	NE	---		2.3	Chromium	1.8	Yes	NE	1.2
	Child Resident	Aggregate Soil	0.12%	Yes	NE	---		21	Aroclor 1254	2.0	Yes	NE	10
									Chromium	16			
	Industrial/ Commercial Worker	Aggregate Soil	0%	Yes	7.0E-04	TEQ	1.8E-06	1.7	Chromium	1.3	Yes	1.1E-04	0.70
						Benzo(a)pyrene	5.8E-06						
						Dibenz(a,h)anthracene	1.3E-06						
						Aroclor 1254	3.1E-06						
						Arsenic	2.9E-06						
						Chromium	6.9E-04						
	Groundskeeper	Aggregate Soil	0%	Yes	6.3E-04	TEQ	1.6E-06	1.5	Chromium	1.1	No	2.3E-05	0.14
						Benzo(a)pyrene	5.2E-06						
						Dibenz(a,h)anthracene	1.2E-06						
						Aroclor 1254	2.8E-06						
						Arsenic	2.7E-06						
						Chromium	6.2E-04						
	Construction Worker	Aggregate Soil	NE	Yes	4.4E-04	Chromium	4.4E-04	7.5	Chromium	5.4	Yes	8.2E-05	1.1
						Vanadium	2.9E-06						

Notes:

NE	Not Evaluated
RME	Reasonable Maximum Exposure
CTE	Central Tendency Exposure
CR	Cancer risk
HI	Hazard Index
HQ	Hazard Quotient
1	Lead evaluation is performed only where lead is a COPC and only for child residents (IEUBK Model) and industrial/commercial workers or groundskeepers (Adult Lead Model)
	Cancer Risks are above 1E-04, Hazard Indices are above 1, or blood lead levels greater than 10 µg/dL in 5% or more.
	Cancer risks fall in the range of 10^{-6} to 10^{-4}.

Table 7-1
Summary of Receptor RME Cancer Risks Adjusted for Chromium Speciation[1]
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	RME		
			Total Cancer Risks	Major contributors to total cancer risk above 1E-05 (individual cancer risk >1E-06)	Individual COC cancer risks
Risk Area D1 - Current/Future	Age-Adjusted Resident	Surface Soil	1.2E-04	Benzo(a)anthracene	5.4E-06
				Benzo(a)pyrene	6.2E-05
				Benzo(b)fluoranthene	8.3E-06
				Dibenz(a,h)anthracene	2.2E-05
				Indeno(1,2,3-cd)pyrene	6.1E-06
				Arsenic	1.1E-05
				Chromium VI	8.0E-07
	Adult Resident	Surface Soil	NE	---	
	Child Resident	Surface Soil	NE	---	
	Construction Worker	Aggregate Soil	5.7E-06	---	
Risk Area D1 - Future	Age-Adjusted Resident	Aggregate Soil	1.0E-04	Benzo(a)anthracene	3.8E-06
				Benzo(a)pyrene	5.9E-05
				Benzo(b)fluoranthene	7.7E-06
				Dibenz(a,h)anthracene	1.2E-05
				Indeno(1,2,3-cd)pyrene	4.8E-06
				Arsenic	9.7E-06
				Chromium VI	7.7E-07
				Vanadium	1.2E-06
	Adult Resident	Aggregate Soil	NE	---	
	Child Resident	Aggregate Soil	NE	---	
Risk Area D3 - Current/Future	Industrial/ Commercial Worker	Surface Soil	3.2E-05	Benzo(a)anthracene	1.8E-06
				Benzo(a)pyrene	1.8E-05
				Benzo(b)fluoranthene	2.7E-06
				Dibenz(a,h)anthracene	1.5E-06
				Arsenic	7.4E-06
				Chromium VI	8.2E-08
	Construction Worker	Aggregate Soil	2.4E-06	---	
Risk Area D3 - Future	Industrial/ Commercial Worker	Aggregate Soil	3.1E-05	Benzo(a)anthracene	1.4E-06
				Benzo(a)pyrene	1.6E-05
				Benzo(b)fluoranthene	2.3E-06
				Dibenz(a,h)anthracene	5.5E-06
				Indeno(1,2,3-cd)pyrene	1.1E-06
				Arsenic	4.7E-06
				Chromium VI	4.6E-08

Table 7-1
Summary of Receptor RME Cancer Risks Adjusted for Chromium Speciation[1]
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	RME		
			Total Cancer Risks	Major contributors to total cancer risk above 1E-05 (individual cancer risk >1E-06)	Individual COC cancer risks
Risk Area E1 - Current/Future	Adult Resident (Elderly Only)	Surface Soil	1.4E-05	Benzo(a)pyrene	7.8E-06
				Arsenic	2.8E-06
				Chromium VI	6.6E-08
	Child Recreational Visitor	Surface Soil	5.6E-05	Benzo(a)anthracene	4.7E-06
				Benzo(a)pyrene	3.9E-05
				Benzo(b)fluoranthene	2.7E-06
				Dibenz(a,h)anthracene	4.5E-06
				Indeno(1,2,3-cd)pyrene	2.2E-06
				Arsenic	2.8E-06
				Chromium VI	3.4E-07
	Groundskeeper	Surface Soil	1.1E-05	Benzo(a)pyrene	6.4E-06
				Arsenic	2.0E-06
				Chromium VI	4.2E-08
	Construction Worker	Aggregate Soil	6.1E-06	---	
Risk Area E1 - Future	Age-Adjusted Resident (Families)	Surface Soil	1.5E-04	Benzo(a)anthracene	1.2E-05
				Benzo(a)pyrene	1.0E-04
				Benzo(b)fluoranthene	7.0E-06
				Dibenz(a,h)anthracene	1.2E-05
				Indeno(1,2,3-cd)pyrene	5.8E-06
				Arsenic	9.0E-06
				Chromium VI	8.9E-07
	Child Resident	Surface Soil	NE	---	
	Age-Adjusted Resident (Families)	Aggregate Soil	4.6E-04	2,3,7,8-TCDD TEQ	2.5E-06
				Bis(2-chloroethyl)ether	1.8E-06
				Hexachlorobenzene	1.2E-06
				N-Nitrosodi-n-propylamine	5.4E-06
				Benzo(a)anthracene	3.7E-05
				Benzo(a)pyrene	3.3E-04
				Benzo(b)fluoranthene	4.8E-05
				Benzo(k)fluoranthene	1.9E-06
				Dibenz(a,h)anthracene	1.4E-05
				Indeno(1,2,3-cd)pyrene	7.2E-06
				Arsenic	8.6E-06
				Chromium VI	9.5E-07
	Adult Resident	Aggregate Soil	NE	---	
	Child Resident	Aggregate Soil	NE	---	

Table 7-1
Summary of Receptor RME Cancer Risks Adjusted for Chromium Speciation[1]
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	RME		
			Total Cancer Risks	Major contributors to total cancer risk above 1E-05 (individual cancer risk >1E-06)	Individual COC cancer risks
Risk Area E2 - Current/Future	Daycare Child	Surface Soil	4.1E-05	Benzo(a)anthracene	2.8E-06
				Benzo(a)pyrene	2.4E-05
				Benzo(b)fluoranthene	4.3E-06
				Dibenz(a,h)anthracene	5.1E-06
				Indeno(1,2,3-cd)pyrene	2.3E-06
				Arsenic	3.0E-06
				Chromium VI	2.9E-07
	Industrial/ Commercial Worker	Surface Soil	8.1E-06	Benzo(a)pyrene	3.9E-06
				Arsenic	1.8E-06
				Chromium VI	3.6E-08
	Construction Worker	Aggregate Soil	1.5E-06	---	
Risk Area E2 - Future	Industrial/ Commercial Worker	Aggregate Soil	1.5E-05	Benzo(a)pyrene	9.0E-06
				Benzo(b)fluoranthene	1.2E-06
				Arsenic	2.7E-06
				Chromium VI	3.6E-08
Risk Area E3 - Current/Future	Age-Adjusted Resident	Surface Soil	1.6E-04	Benzo(a)anthracene	1.2E-05
				Benzo(a)pyrene	9.5E-05
				Benzo(b)fluoranthene	1.1E-05
				Dibenz(a,h)anthracene	1.7E-05
				Indeno(1,2,3-cd)pyrene	6.6E-06
				Arsenic	1.1E-05
				Chromium VI	1.1E-06
	Adult Resident	Surface Soil	NE	---	
	Child Resident	Surface Soil	NE	---	
	Groundskeeper	Surface Soil	1.2E-05	Benzo(a)pyrene	6.0E-06
				Dibenz(a,h)anthracene	1.1E-06
				Arsenic	2.5E-06
				Chromium VI	5.1E-08
	Construction Worker	Aggregate Soil	1.4E-06	---	
Risk Area E3 - Future	Age-Adjusted Resident	Aggregate Soil	1.3E-04	Benzo(a)anthracene	9.5E-06
				Benzo(a)pyrene	7.4E-05
				Benzo(b)fluoranthene	8.7E-06
				Dibenz(a,h)anthracene	1.3E-05
				Indeno(1,2,3-cd)pyrene	5.0E-06
				Arsenic	1.3E-05
				Chromium VI	2.6E-06
	Adult Resident	Aggregate Soil	NE	---	
	Child Resident	Aggregate Soil	NE	---	

Table 7-1
Summary of Receptor RME Cancer Risks Adjusted for Chromium Speciation[1]
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	RME		
			Total Cancer Risks	Major contributors to total cancer risk above 1E-05 (individual cancer risk >1E-06)	Individual COC cancer risks
Risk Area F - Current/Future	Age-Adjusted Resident	Surface Soil	1.5E-04	Benzo(a)anthracene	1.3E-05
				Benzo(a)pyrene	7.1E-05
				Benzo(b)fluoranthene	1.4E-05
				Benzo(k)fluoranthene	1.4E-06
				Dibenz(a,h)anthracene	2.4E-05
				Indeno(1,2,3-cd)pyrene	5.2E-06
				Arsenic	2.0E-05
				Chromium VI	9.7E-07
	Adult Resident	Surface Soil	NE	---	
	Child Resident	Surface Soil	NE	---	
	Construction Worker	Aggregate Soil	2.2E-06	Chromium VI	1.8E-07
				Vanadium	1.4E-06
Risk Area F - Future	Age-Adjusted Resident	Aggregate Soil	1.7E-04	Benzo(a)anthracene	1.1E-05
				Benzo(a)pyrene	9.1E-05
				Benzo(b)fluoranthene	1.2E-05
				Benzo(k)fluoranthene	1.2E-06
				Dibenz(a,h)anthracene	2.2E-05
				Indeno(1,2,3-cd)pyrene	4.9E-06
				Arsenic	1.9E-05
				Chromium VI	5.5E-06
	Adult Resident	Aggregate Soil	NE	---	
	Child Resident	Aggregate Soil	NE	---	
Risk Area G - Current/Future	Industrial/ Commercial Worker	Surface Soil	2.0E-05	Benzo(a)pyrene	4.4E-06
				Dibenz(a,h)anthracene	1.2E-06
				Arsenic	1.3E-05
				Chromium VI	1.8E-07
	Construction Worker	Aggregate Soil	1.9E-06	---	
Risk Area G - Future	Industrial/ Commercial Worker	Aggregate Soil	1.4E-05	Benzo(a)pyrene	3.3E-06
				Arsenic	8.2E-06
				Chromium VI	1.1E-07
Risk Area H - Current/Future	Industrial/ Commercial Worker	Surface Soil	2.5E-05	Benzo(a)anthracene	1.3E-06
				Benzo(a)pyrene	1.4E-05
				Benzo(b)fluoranthene	1.6E-06
				Dibenz(a,h)anthracene	4.6E-06
				Indeno(1,2,3-cd)pyrene	1.1E-06
				Arsenic	2.4E-06
				Chromium VI	4.3E-08
	Construction Worker	Aggregate Soil	3.7E-06	---	
Risk Area H - Future	Industrial/ Commercial Worker	Aggregate Soil	4.8E-05	Benzo(a)anthracene	2.5E-06
				Benzo(a)pyrene	2.6E-05
				Benzo(b)fluoranthene	2.9E-06
				Dibenz(a,h)anthracene	6.9E-06
				Indeno(1,2,3-cd)pyrene	1.3E-06
				Arsenic	8.8E-06
				Chromium VI	4.8E-08

Table 7-1
Summary of Receptor RME Cancer Risks Adjusted for Chromium Speciation[1]
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

Property	Scenario/ Receptor	Media	RME		
			Total Cancer Risks	Major contributors to total cancer risk above 1E-05 (individual cancer risk >1E-06)	Individual COC cancer risks
Risk Area I - Current/Future	Industrial/ Commercial Worker	Surface Soil	3.3E-05	Benzo(a)anthracene	2.1E-06
				Benzo(a)pyrene	2.0E-05
				Benzo(b)fluoranthene	3.5E-06
				Dibenz(a,h)anthracene	2.7E-06
				Arsenic	3.4E-06
				Chromium VI	4.6E-08
	Construction Worker	Aggregate Soil	1.9E-05	Benzo(a)anthracene	1.3E-06
				Benzo(a)pyrene	1.1E-05
				Dibenz(a,h)anthracene	2.7E-06
				Chromium VI	2.1E-08
				Vanadium	1.5E-06
Risk Area I - Future	Industrial/ Commercial Worker	Aggregate Soil	3.3E-04	Benzo(a)anthracene	2.5E-05
				Benzo(a)pyrene	2.1E-04
				Benzo(b)fluoranthene	8.8E-06
				Dibenz(a,h)anthracene	5.3E-05
				Indeno(1,2,3-cd)pyrene	1.8E-05
				Arsenic	6.2E-06
				Chromium VI	3.3E-08
Risk Area J - Current/Future	Trespasser	Surface Soil	4.0E-05	Benzo(a)pyrene	5.6E-06
				Dibenz(a,h)anthracene	1.8E-06
				Aroclor 1254	3.9E-06
				Chromium VI	2.5E-05
		Sediment	9.6E-06	Benzo(a)pyrene	5.9E-06
				Dibenz(a,h)anthracene	1.1E-06
				Chromium VI	1.2E-07
		Surface Water	6.8E-06	Benzo(a)pyrene	5.2E-06
Risk Area J - Future	Age-Adjusted Resident	Surface Soil	9.8E-04	Benzo(a)anthracene	1.5E-05
				Benzo(a)pyrene	1.1E-04
				Benzo(b)fluoranthene	1.2E-05
				Dibenz(a,h)anthracene	3.4E-05
				Indeno(1,2,3-cd)pyrene	7.5E-06
				Aroclor 1254	5.2E-05
				Aroclor 1260	2.7E-06
				Arsenic	1.2E-05
				Chromium VI	7.3E-04
				Vanadium	1.1E-06
	Adult Resident	Surface Soil	NE	---	
	Child Resident	Surface Soil	NE	---	
	Industrial/ Commercial Worker	Surface Soil	7.0E-05	Benzo(a)anthracene	1.1E-06
				Benzo(a)pyrene	7.4E-06
				Dibenz(a,h)anthracene	2.4E-06
				Aroclor 1254	1.5E-05
				Arsenic	3.0E-06
				Chromium VI	3.9E-05

Table 7-1
Summary of Receptor RME Cancer Risks Adjusted for Chromium Speciation[1]
Scovill Industrial Landfill Superfund Site
Waterbury, Connecticut

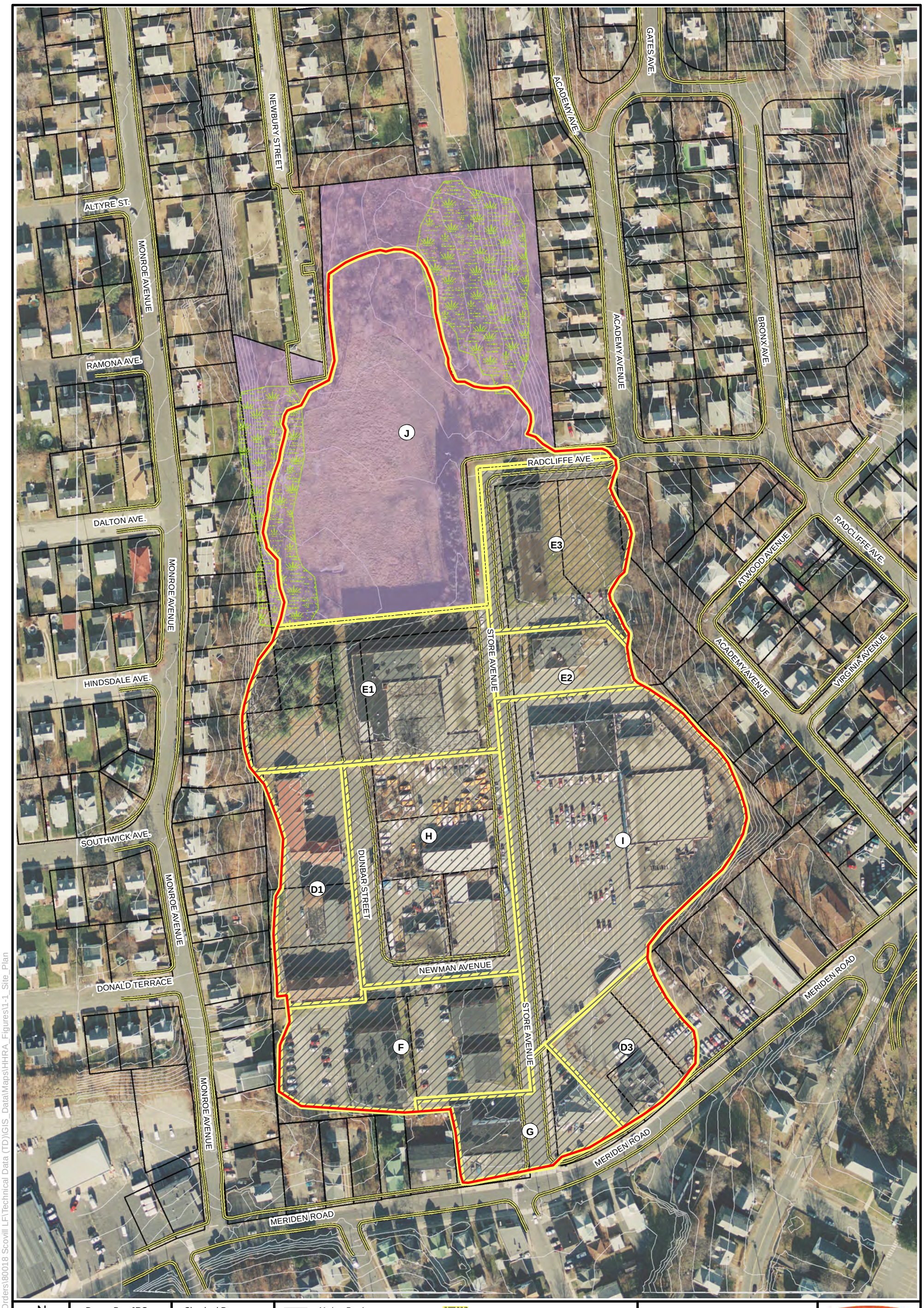
Property	Scenario/ Receptor	Media	RME		
			Total Cancer Risks	Major contributors to total cancer risk above 1E-05 (individual cancer risk >1E-06)	Individual COC cancer risks
Risk Area J - Future	Age-Adjusted Resident	Aggregate Soil	3.6E-04	2,3,7,8-TCDD TEQ	7.2E-06
				Benzo(a)anthracene	1.0E-05
				Benzo(a)pyrene	8.3E-05
				Benzo(b)fluoranthene	9.7E-06
				Dibenz(a,h)anthracene	1.9E-05
				Indeno(1,2,3-cd)pyrene	6.8E-06
				Aroclor 1254	1.0E-05
				Aroclor 1260	1.2E-06
				Arsenic	1.2E-05
				Chromium VI	2.0E-04
	Adult Resident	Aggregate Soil	NE	---	
	Child Resident	Aggregate Soil	NE	---	
	Industrial/ Commercial Worker	Aggregate Soil	2.8E-05	2,3,7,8-TCDD TEQ	1.8E-06
				Benzo(a)pyrene	5.8E-06
				Dibenz(a,h)anthracene	1.3E-06
				Aroclor 1254	3.1E-06
				Arsenic	2.9E-06
				Chromium VI	1.1E-05
	Groundskeeper	Aggregate Soil	2.5E-05	2,3,7,8-TCDD TEQ	1.6E-06
				Benzo(a)pyrene	5.2E-06
				Dibenz(a,h)anthracene	1.2E-06
				Aroclor 1254	2.8E-06
				Arsenic	2.7E-06
				Chromium VI	9.5E-06
	Construction Worker	Aggregate Soil	1.1E-05	Chromium VI	6.7E-06
				Vanadium	2.9E-06

Notes:

1) Based on 2011 Chromium speciation data, total chromium consists of 1.54% hexavalent chromium. Calculated cancer risks from total chromium, which were based on hexavalent chromium toxicity values, have been multiplied by 1.54% to estimate cancer risks from hexavalent chromium. Total cancer risks have been reduced to reflect the revised total cancer risks with the decreased contribution from total chromium.

NE Not Evaluated
RME Reasonable Maximum Exposure
2,3,7,8-TCDD TEQ Dioxins and Furans 2,3,7,8-TCDD Toxic Equivalents
COC Contaminant of Concern - Major contributors to total cancer risk above 1E-05 with individual cancer risk >1E-06.
CR Cancer risk
Cancer Risks are above 1E-04.
Cancer risks fall in the range of 10^{-6} to 10^{-4}.
Chromium VI is not a major contibutor to risk in these scenarios where it was formerly considered a major contributor.

FIGURES



N

Drawn By: JRS	Checked By:
Mar. 9, 2011	Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Estimated Limit of Scovill Derived/Placed Fill
Modern Ground Surface Countour
Assessor's Parcel Boundries
Developed Parcels (Parcel A)
Calabrese Property (Parcel B)
Approximate Wetland Area

FIGURE 1-1
Site Plan
Scovill Industrial Landfill
Waterbury, CT

Nobis
Engineering a Sustainable Future
Nobis Engineering, Inc.
585 Middlesex Street
Lowell, MA 01851
(978) 683-0891

R:\80000 Task Orders\80018 Scovill LF\Technical Data (TD)\GIS_Data\Maps\HHRA_Figures\1-1_Site_Plan

1. Aerial imagery provided by EPA-ESD, September, 2001.
2. Parcel boundaries provided by City of Waterbury, CT.
3. Sample locations by Foster Wheeler under task by M&E 2002, CRA 2004, and Nobis 2008-2010.

N

Drawn By: JRS	Checked By:
Mar. 9, 2011	Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Assessor's Parcel Boundries
Risk Area Limits
Estimated Limit of Scovill Derived/Placed Fill
Surface Soil Sample Locations
Soil Boring Sample Locations

FIGURE 3-1
Human Health Risk Assessment
Soil Sample Locations
Scovill Industrial Landfill
Waterbury, CT

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1. Aerial imagery provided by EPA-ESD, September, 2001.
2. Parcel boundaries provided by City of Waterbury, CT.
3. Sample locations by Foster Wheeler under task by M&E 2002, CRA 2004, and Nobis 2008-2010.

N

Drawn By: JRS	Checked By:
Mar. 9, 2011	Revision No. 00

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Assessor's Parcel Boundries
Risk Area Limits
Estimated Limit of Scovill Derived/Placed Fill
Sediment Sample Locations
Surface Water Sample Locations

FIGURE 3-2
Human Health Risk Assesssment
Surface Water & Sediment
Sample Locations
Scovill Industrial Landfill
Waterbury, CT

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1. Aerial imagery provided by EPA-ESD, September, 2001.
2. Parcel boundaries provided by City of Waterbury, CT.
3. Sample locations by Foster Wheeler under task by M&E 2002, CRA 2004, and Nobis 2008-2010.

N

Drawn By: JRS	Checked By:
Mar. 14, 2011	Revision No. 01

APPROXIMATE SCALE
0 75 150 300 Feet

Modern Roads
Assessor's Parcel Boundries
Risk Area Limits
Estimated Limit of Scovill Derived/Placed Fill
Monitoring Well Groundwater Sample Locations
Vertical Profiling Groundwater Sample Locations

FIGURE 3-3

Human Health Risk Assesssment
Groundwater Sample Locations
Scovill Industrial Landfill
Waterbury, CT

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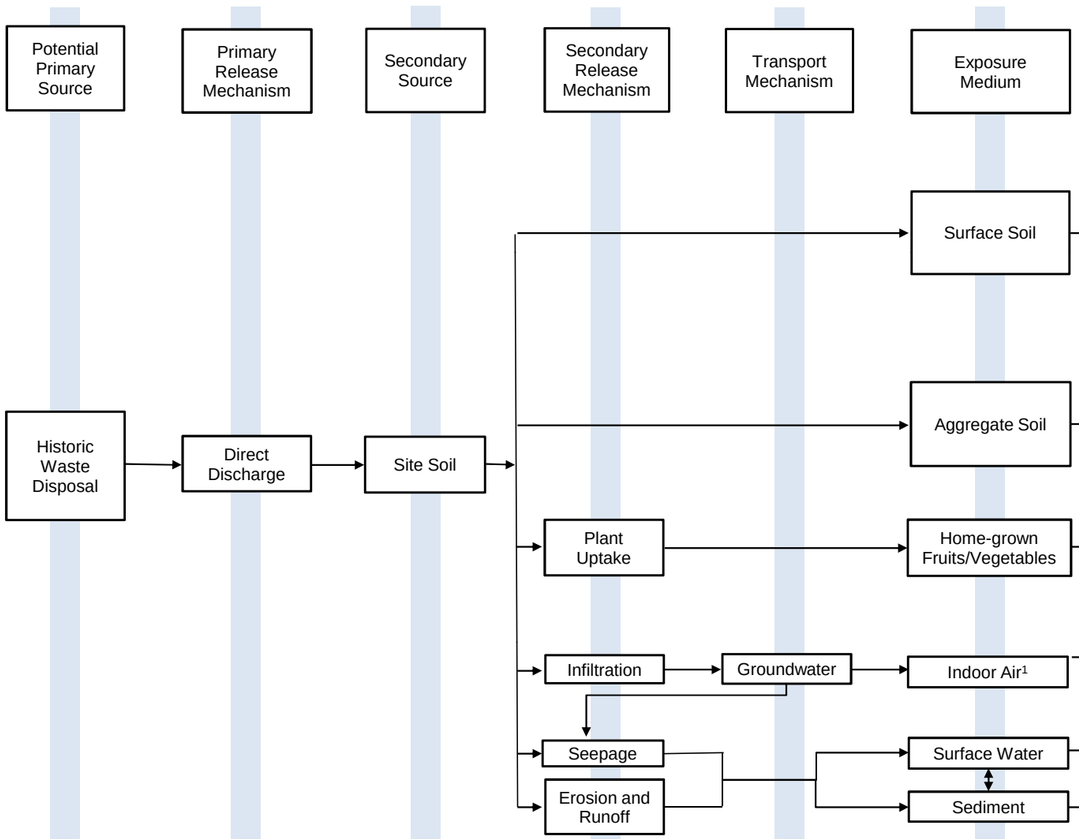
Figure 4.2-1
Conceptual Site Model for Human Health Exposures
Scovill Industrial Landfill Site
Waterbury, Connecticut



Receptors	Exposure Routes			Risk Exposure Areas											
				Parcel A										Parcel B		
	Ingestion	Dermal	Inhalation	Groundwater	D1	D3	E1	E2	E3	F	G	H	I	Groundwater	Wetland	J
Residents - child	x	x	x		x		x		x	x						x
Residents - adult	x	x	x		x		x		x	x						x
Recreational Visitors - child	x	x	x				x									
Groundskeepers	x	x	x				x		x							
Industrial/Commercial Workers	x	x	x			x		x			x	x	x			x
Day Care Children - ages 1-6 years	x	x	x					x								
Trespassers - ages 6-16 years	x	x	x													x
Residents - child	x	x	x		x		x		x	x						x
Residents - adult	x	x	x		x		x		x	x						x
Groundskeepers	x	x	x													x
Industrial/Commercial Workers	x	x	x			x		x			x	x	x			x
Construction/Utility Workers	x	x	x		x	x	x	x	x	x	x	x	x			x
Residents - child	o				o		o		o	o						o
Residents - adult	o				o		o		o	o						o
Residents - child			x	x										x		
Residents - adult			x	x										x		
Day Care Children - ages 1-6 years			x	x												
Industrial/Commercial Workers			x	x										x		
Trespassers - ages 6-16 years		x													x	
Trespassers - ages 6-16 years	x	x													x	

Notes:
o = Potential exposure pathway of relatively minor importance.
x = Potential exposure pathway to be evaluated in HHRA.

[1] Indoor air exposures evaluated qualitatively using shallow groundwater data and EPA's OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA, 2002b).

APPENDIX A

Appendix A Notes

Tables A-2.1 through A-2.5 – Surrogate screening values were used for COPC selection for detected chemicals lacking screening values. The surrogate screening values were selected based on similar chemical structure. These surrogate screening values were used for screening purposes only; surrogate toxicity values were not used to calculate risk. The use of surrogate screening values was a qualitative approach.

Tables A-5.1 and A-5.2 and Tables A-7.1d1 through A-7.2j - In the absence of a Tier 1 or Tier 2 dioxin non-cancer toxicity value, this risk assessment uses the ATSDR MRL and Cal EPA REL in quantifying dioxin non-cancer risk. These values have not been endorsed as Tier 3 values. Upon completion of the EPA's dioxin reassessment, the non-cancer risks will be re-evaluated.

TABLE A-1
SELECTION OF EXPOSURE PATHWAYS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/ Future	Soil	Soil	Surface Soil Risk Areas D1, E1, E3, F	Resident	Adult	Ingestion	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Adult Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
				Resident[1]	Child	Ingestion	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Area E1	Recreational visitor[2]	Adult	Ingestion	None	Adult Recreational visitors would present a scenario of lower risk than risks from residential exposures at this and other current residential properties; therefore risks from this scenario are not evaluated separately.
						Dermal	None	
						Inhalation	None	
					Child	Ingestion	Quant	Child Recreational visitors may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Recreational visitors may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Recreational visitors may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Areas E1, E3	Groundskeeper[3]	Adult	Ingestion	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Groundskeepers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Areas D3, E2, G, H, I	Industrial/Commercial Worker	Adult	Ingestion	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Area E2	Day Care Child	Child	Ingestion	Quant	Children at the Day Care may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Children at the Day Care may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Children at the Day Care may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			Surface Soil Risk Area J	Trespasser	Adolescent	Ingestion	Quant	Trespassers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Trespassers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Trespassers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Areas D1, D3, E1, E2, E3, F, G, H, I	Construction/Utility Worker[4]	Adult	Ingestion	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Dermal	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Inhalation	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through contact with fugitive dust and volatiles.
	Sediment	Sediment	Sediment at Wetland Area Risk Area J	Trespasser	Adolescent	Ingestion	Quant	Trespassers may be exposed to contaminated sediment through inadvertent contact.
						Dermal	Quant	Trespassers may be exposed to contaminated sediment through inadvertent contact.
	Surface Water	Surface Water	Surface Water at Wetland Area Risk Area J	Trespasser	Adolescent	Ingestion	None	Non-swimming scenario, therefore, ingestion is unlikely.
						Dermal	Quant	Trespassers may be exposed to contaminated surface water through inadvertent contact while wading.
	Groundwater	Indoor air modeled from shallow groundwater Parcel A	On-site buildings Parcel A	Resident	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
					Child	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
				Day care Child	Child	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
				Industrial/Commercial Worker	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].

TABLE A-1
SELECTION OF EXPOSURE PATHWAYS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Soil	Soil	Surface Soil Risk Area J	Resident	Adult	Ingestion	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Adult Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
					Child	Ingestion	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
				Industrial/Commercial Worker	Adult	Ingestion	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Areas D1, E1, E3, F, J	Resident	Adult	Ingestion	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Adult Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Adult Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
					Child	Ingestion	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Child Residents may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Child Residents may be exposed to contaminated soil through contact with fugitive dust and volatiles.
		home-grown fruits and vegetables	Home-grown fruits and Risk Areas D1, E1, E3, F, J	Resident	Adult	Ingestion	Qual	Residents may be exposed to contaminants through ingestion of home-grown fruits and vegetables; however, risks are likely to be relatively minor compared to direct contact with soils. Therefore, risks from this pathway are not quantified. Such exposures are discussed in the uncertainty section.
					Child	Ingestion	Qual	
		Soil	All Soil (0-10 ft) Risk Area J	Groundskeeper	Adult	Ingestion	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Groundskeepers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Groundskeepers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Areas D3, E2, G, H, I, J	Industrial/Commercial Worker	Adult	Ingestion	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Dermal	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through inadvertent contact.
						Inhalation	Quant	Industrial/Commercial Workers may be exposed to contaminated soil through contact with fugitive dust and volatiles.
			All Soil (0-10 ft) Risk Area J	Construction/Utility Worker[4]	Adult	Ingestion	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Dermal	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through inadvertent contact.
						Inhalation	Quant	Construction/Utility Workers may be exposed to contaminated soil currently located at depth through contact with fugitive dust and volatiles.
	Groundwater	Indoor air modeled from shallow groundwater Parcel B	Future on-site buildings Risk Area J	Resident	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
					Child	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].
				Industrial/Commercial Worker	Adult	Inhalation	Qual	Concentrations of volatile contaminants in groundwater will be used to evaluate the indoor air pathway following EPA's Subsurface Vapor Intrusion Guidance[5].

[1] Children are included in the evaluation of current/future residents at the elderly housing apartments of Risk Area E1 to address risks to future child residents should the current elderly apartments changeover to housing for all ages, without new development and resulting redistribution of deep soils.

[2] Current/future child recreational visitors are considered at this elderly housing subparcel with open space. Adult recreational visitors at this subparcel are not evaluated since these receptors would represent lower risks than the residential scenarios being evaluted. Adult and child recreational visitors at other current residential properties would present a scenario of lower risk than risks from the residential exposures being evaluated; therefore, risks from this scenario are not evaluated separately.

[3] Current/future groundskeepers are considered at the Risk Areas containing apartments and landscaping.
[4] Current/future Construction/Utility Workers are considered at all Risk Areas, except the fenced area of Risk Area J. Construction/Utility Workers are considered at Risk Area J under the future scenario.
[5] OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA, 2002).
Quant - Quantitative Analysis
Qual - Qualitative Analysis
Parcel A - Non-Calabrese Property, including Risk Areas D1,D3, E1, E2, E3, F, G, H, and I.
Parcel B - Calabrese Property, including Risk Area J.

TABLE A-2.1d1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area D1 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.006	0.006	mg/kg	SS02	1/12	0.001-0.72	0.006	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.014	0.014	mg/kg	SS09	1/4	0.19-0.8	0.014	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.11	0.11	mg/kg	SS02	1/4	0.19-0.42	0.11	NA	782	n	NA	CT RSR	NO	BSL
	319-84-6	alpha-BHC	0.0003	0.0014	mg/kg	SS109	2/11	0.0018-0.0022	0.0014	NA	0.077	c	0.097	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.29	2.4	mg/kg	SS-10	4/12	0.19-0.53	2.4	NA	35	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.03	0.1	mg/kg	SS02	3/12	0.2-0.42	0.1	NA	256	c	1000	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.001	0.0063	mg/kg	SS09	3/10	0.0018-0.0022	0.0063	NA	1.6	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0018	0.0035	mg/kg	SS02	2/12	0.0018-0.0022	0.0035	NA	1.6	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.1	0.26	mg/kg	SS-11	3/11	0.06-2.8	0.26	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0006	0.029	mg/kg	SS02	6/11	0.0035-0.0042	0.029	NA	2.0	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0016	0.063	mg/kg	SS02	9/11	0.0035-0.0037	0.063	NA	1.4	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0029	0.079	mg/kg	SS02	11/11	-	0.079	NA	1.7	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.025	0.082	mg/kg	SS02	2/12	0.19-0.94	0.082	NA	7.8	n	270	CT RSR	NO	BSL
	131-11-3	Dimethyl phthalate	0.38	0.38	mg/kg	SS109	1/12	0.2-0.94	0.38	NA	NA		1000	CT RSR	YES	NBA
	84-74-2	Di-n-butylphthalate	0.031	0.069	mg/kg	SS-10	2/12	0.2-0.8	0.069	NA	611	n	1000	CT RSR	NO	BSL
	33213-65-9	Endosulfan II	0.00058	0.00058	mg/kg	SS-10	1/12	0.0036-0.0042	0.00058	NA	37	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.002	0.0042	mg/kg	SS-12	4/9	0.0037-0.0042	0.0042	NA	37	n	410	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0011	0.013	mg/kg	SS02	2/10	0.0036-0.0042	0.013	NA	1.8	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0022	0.011	mg/kg	SS09	4/11	0.0036-0.0042	0.011	NA	1.8	n	20	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.00043	0.00043	mg/kg	SS-12	1/12	0.0018-0.0025	0.00043	NA	0.11	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00032	0.00098	mg/kg	SS-12	3/12	0.0018-0.0022	0.00098	NA	0.053	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.016	0.049	mg/kg	SS09	2/8	0.018-0.022	0.049	NA	31	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.11	0.11	mg/kg	SS108	1/2	0.31-0.31	0.11	NA	7820	n	NA	CT RSR	NO	BSL
	1634-04-4	MTBE	0.007	0.009	mg/kg	SS09	2/4	0.31-0.36	0.009	NA	43	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.12	0.12	mg/kg	SS02	1/12	0.19-0.94	0.12	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.031	0.11	mg/kg	SS02	4/12	0.35-0.42	0.11	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.039	0.46	mg/kg	SS02	8/12	0.35-0.37	0.46	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.076	1.8	mg/kg	SS09	12/12	-	1.8	NA	0.15	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.077	2.1	mg/kg	SS09	12/12	-	2.1	NA	0.015	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.1	2.7	mg/kg	SS09	12/12	-	2.7	NA	0.15	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.068	1.5	mg/kg	SS09	12/12	-	1.5	NA	3.6	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.082	1.9	mg/kg	SS09	12/12	-	1.9	NA	1.5	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.028	0.42	mg/kg	SS09	5/12	0.35-0.42	0.42	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.12	2.6	mg/kg	SS09	12/12	-	2.6	NA	15	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.038	0.53	mg/kg	SS09	10/12	0.35-0.36	0.53	NA	0.015	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.18	4.5	mg/kg	SS09	12/12	-	4.5	NA	229	n	1000	CT RSR	NO	BSL

TABLE A-2.1d1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area D1 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	86-73-7	Fluorene	0.033	0.16	mg/kg	SS02	2/12	0.19-0.42	0.16	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.064	1.7	mg/kg	SS09	12/12	-	1.7	NA	0.15	c	1	CT RSR	YES	ASL
	85-01-8	Phenanthrene	0.074	2	mg/kg	SS02	12/12	-	2	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.18	3.1	mg/kg	SS09	12/12	-	3.1	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11096-82-5	Aroclor-1260	0.021	0.021	mg/kg	SS109	1/12	0.035-0.042	0.021	NA	0.22	c	1	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.39	0.39	mg/kg	SS109	1/12	0.001-0.36	0.39	NA	0.55	c	12	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	6970	10900	mg/kg	SS-12	12/12	-	10900	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.9	6.7	mg/kg	SS-11	12/12	-	6.7	NA	0.39	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	29.3	102	mg/kg	SS108	12/12	-	102	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.3	0.64	mg/kg	SS108	11/12	0.34-0.34	0.64	NA	16	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.33	1.1	mg/kg	SS02	9/12	0.09-0.2585	1.1	NA	7.0	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	765	3640	mg/kg	SS108	12/12	-	3640	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	8.8	19.5	mg/kg	SS-10	12/12	-	19.5	NA	0.29	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	4.2	8.5	mg/kg	SS02	12/12	-	8.5	NA	2.3	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	24.5	268	mg/kg	SS-10	10/12	36.4-44.6	268	NA	313	n	2500	CT RSR	NO	BSL
	7439-89-6	Iron	9700	17500	mg/kg	SS02	12/12	-	17500	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	26.7	171	mg/kg	SS-12	12/12	-	171	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	1880	3950	mg/kg	SS108	12/12	-	3950	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	187	445	mg/kg	SS108	12/12	-	445	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.07	1.3	mg/kg	SS-11	6/12	0.08-0.95	1.3	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	10	17.7	mg/kg	SS-10, SS190	8/12	10.7-11.6	17.7	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	699	2750	mg/kg	SS109	12/12	-	2750	NA	NA		NA		NO	Essential Nutrient
	7782-49-2	Selenium	0.97	0.97	mg/kg	SS02	1/12	0.64-3.9	0.97	NA	39	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.57	0.64	mg/Kg	SS109	2/12	0.2171-0.93	0.64	NA	39	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	55.3	1240	mg/Kg	SS02	4/12	192-261	1240	NA	NA		NA		NO	Essential Nutrient
	7440-28-0	Thallium	1	1	mg/kg	SS09	1/12	1.2-2.8	1	NA	NA		5.4	CT RSR	YES	NBA
	7440-62-2	Vanadium	15.8	32.1	mg/kg	SS02	12/12	-	32.1	NA	0.55	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	51.5	289	mg/kg	SS-10	12/12	-	289	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

c = cancer based screening value set at a target risk of 1E-06.
NA = not available.
n = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2d1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area D1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.006	0.034	mg/kg	SB04	3/17	0.001-0.81	0.034	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.014	0.014	mg/kg	SS09	1/9	0.18-7.4	0.014	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.11	0.11	mg/kg	SS02	1/9	0.18-7.4	0.11	NA	782	n	NA	CT RSR	NO	BSL
	319-84-6	alpha-BHC	0.0003	0.0014	mg/kg	SS109	2/17	0.0018-0.0023	0.0014	NA	0.077	c	0.097	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.035	16	mg/kg	SB04	9/18	0.19-0.53	16	NA	35	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.007	0.007	mg/kg	SB04	1/17	0.001-0.81	0.007	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.03	0.1	mg/kg	SS02	3/17	0.18-7.4	0.1	NA	256	c	1000	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.001	0.0063	mg/kg	SS09	3/16	0.0018-0.0023	0.0063	NA	1.6	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0018	0.0061	mg/kg	SB04	3/18	0.0018-0.0023	0.0061	NA	1.6	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.1	0.26	mg/kg	SS-11	3/15	0.06-3.5	0.26	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0006	0.054	mg/kg	SB04	8/17	0.0035-0.0045	0.054	NA	2.0	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0016	0.063	mg/kg	SS02	11/17	0.0035-0.0045	0.063	NA	1.4	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0029	0.079	mg/kg	SS02	13/17	0.0035-0.0045	0.079	NA	1.7	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.025	0.082	mg/kg	SS02	2/17	0.18-7.4	0.082	NA	7.8	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0053	0.0053	mg/kg	SB04	1/17	0.0035-0.0045	0.0053	NA	0.030	c	0.038	CT RSR	NO	BSL
	131-11-3	Dimethyl phthalate	0.38	0.38	mg/kg	SS109	1/17	0.18-7.4	0.38	NA	NA		1000	CT RSR	YES	NBA
	84-74-2	Di-n-butylphthalate	0.031	0.09	mg/kg	SB04	3/17	0.18-7.4	0.09	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.071	0.071	mg/kg	SB04	1/17	0.18-0.8	0.071	NA	NA		1000	CT RSR	YES	NBA
	33213-65-9	Endosulfan II	0.00058	0.00058	mg/kg	SS-10	1/18	0.0035-0.0045	0.00058	NA	37	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.002	0.0042	mg/kg	SS-12	4/15	0.0035-0.0045	0.0042	NA	37	n	410	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0011	0.013	mg/kg	SS02	2/16	0.0035-0.0045	0.013	NA	1.8	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0022	0.011	mg/kg	SS09	4/17	0.0035-0.0045	0.011	NA	1.8	n	20	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.00043	0.00043	mg/kg	SS-12	1/18	0.0018-0.0025	0.00043	NA	0.11	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00032	0.0021	mg/kg	SB04	4/18	0.0018-0.0023	0.0021	NA	0.053	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.016	0.049	mg/kg	SS09	2/14	0.018-0.023	0.049	NA	31	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.11	0.29	mg/kg	SB110	2/5	0.27-0.39	0.29	NA	7820	n	NA	CT RSR	NO	BSL
	1634-04-4	MTBE	0.007	0.009	mg/kg	SS09	4/9	0.27-0.41	0.009	NA	43	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.12	0.12	mg/kg	SS02	1/17	0.18-7.4	0.12	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.031	0.11	mg/kg	SS02	4/17	0.18-7.4	0.11	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.029	0.46	mg/kg	SS02	9/17	0.22-7.4	0.46	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.031	1.8	mg/kg	SS09	17/17	-	1.8	NA	0.15	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.028	2.1	mg/kg	SS09	17/17	-	2.1	NA	0.015	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.027	2.7	mg/kg	SS09	17/17	-	2.7	NA	0.15	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.054	1.5	mg/kg	SS09	15/17	0.23-7.4	1.5	NA	3.6	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.029	1.9	mg/kg	SS09	17/17	-	1.9	NA	1.5	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.025	0.42	mg/kg	SS09	6/17	0.22-7.4	0.42	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.043	2.6	mg/kg	SS09	18/18	-	2.6	NA	15	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.021	0.53	mg/kg	SS09	11/17	0.22-7.4	0.53	NA	0.015	c	1	CT RSR	YES	ASL

TABLE A-2.2d1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area D1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	206-44-0	Fluoranthene	0.074	4.5	mg/kg	SS09	18/18	-	4.5	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.033	0.16	mg/kg	SS02	2/17	0.18-7.4	0.16	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.055	1.7	mg/kg	SS09	15/17	0.23-7.4	1.7	NA	0.15	c	1	CT RSR	YES	ASL
	85-01-8	Phenanthrene	0.036	2	mg/kg	SS02	17/17	-	2	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.071	3.1	mg/kg	SS09	18/18	-	3.1	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.24	0.24	mg/kg	SB04	1/18	0.035-0.045	0.24	NA	0.11	n	1	CT RSR	YES	ASL
	11096-82-5	Aroclor-1260	0.021	0.021	mg/kg	SS109	1/18	0.035-0.045	0.021	NA	0.22	c	1	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.075	0.39	mg/kg	SS109	2/17	0.001-0.41	0.39	NA	0.55	c	12	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	3920	17100	mg/kg	SB110	19/19	-	17100	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.2	6.7	mg/kg	SS-11	19/19	-	6.7	NA	0.39	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	26.9	144	mg/kg	SB107	19/19	-	144	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.2	0.64	mg/kg	SS108	17/19	0.34-0.34	0.64	NA	16	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.076	2.1	mg/kg	SB04	16/19	0.09-0.2585	2.1	NA	7.0	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	632	8030	mg/kg	SB107	19/19	-	8030	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	4.2	21.4	mg/kg	SB04	19/19	-	21.4	NA	0.29	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.4	8.5	mg/kg	SS02	19/19	-	8.5	NA	2.3	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	10.7	509	mg/kg	SB04	17/19	36.4-44.6	509	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	5260	17500	mg/kg	SS02	19/19	-	17500	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	3.1	171	mg/kg	SS-12	19/19	-	171	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	1190	3950	mg/kg	SS108	19/19	-	3950	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	111	445	mg/kg	SS108	19/19	-	445	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.053	1.3	mg/kg	SS-11	10/19	0.0582-0.95	1.3	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	4	176	mg/kg	SB04	15/19	10.7-11.6	176	NA	155	n	1400	CT RSR	YES	ASL
	7440-09-7	Potassium	699	2750	mg/kg	SS109	19/19	-	2750	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.97	1.4	mg/kg	SB109	2/19	0.64-4.9	1.4	NA	39	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.1	0.64	mg/Kg	SS109	5/19	0.1989-1.2	0.64	NA	39	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	55.3	1240	mg/Kg	SS02	10/19	116-261	1240	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	1	1.8	mg/kg	SB04	3/19	1.2-3.5	1.8	NA	NA		5.4	CT RSR	YES	NBA
	7440-62-2	Vanadium	9.1	937	mg/kg	SB04	19/19	-	937	NA	0.55	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	19.4	760	mg/kg	SB04	19/19	-	760	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

c = cancer based screening value set at a target risk of 1E-06.
NA = not available.
n = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1d3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area D3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.013	0.014	mg/kg	SS38	1/4	0.56-0.65	0.014	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.022	0.051	mg/kg	SS114	3/4	1.7-1.7	0.051	NA	782	n	NA	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.011	0.011	mg/kg	SS38	1/4	0.0018-0.011	0.011	NA	0.27	c	0.34	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.43	0.46	mg/kg	SS38	1/4	0.18-0.19	0.46	NA	34.7	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.16	0.16	mg/kg	SS38	1/4	0.18-0.19	0.16	NA	256	c	1000	CT RSR	NO	BSL
	57-74-9	Chlordane	0.58	0.79	mg/kg	SS38	1/1	-	0.79	NA	1.62	c	0.49	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.000279	0.000279	mg/kg	SS38	1/4	0.00064-2.8	0.000279	NA	156	n	1400	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0047	0.12	mg/kg	SS38	2/4	0.0035-0.0035	0.12	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.019	0.15	mg/kg	SS38	2/4	0.0035-0.0035	0.15	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.076	0.076	mg/kg	SS118	1/4	0.18-1.7	0.076	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.021	0.021	mg/kg	SS38	1/4	0.0035-0.0036	0.021	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.082	0.092	mg/kg	SS38	1/4	0.18-0.19	0.092	NA	611	n	1000	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0024	0.021	mg/kg	SS38	2/3	0.0035-0.022	0.021	NA	36.7	n	410	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0022	0.0022	mg/kg	SS118	1/4	0.0035-0.022	0.0022	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0045	0.0045	mg/kg	SS114	1/3	0.0035-0.022	0.0045	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.011	0.011	mg/kg	SS38	1/4	0.0018-0.0018	0.011	NA	0.0533	c	0.067	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.042	0.042	mg/kg	SS118	1/4	0.18-1.7	0.042	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.48	0.97	mg/kg	SS114	3/4	0.18-0.18	0.97	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.23	0.46	mg/kg	SS118	3/4	0.18-0.18	0.46	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.9	3.8	mg/kg	SS118	3/4	0.18-0.18	3.8	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.022	3.8	mg/kg	SS118	4/4	-	3.8	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.026	5.6	mg/kg	SS118	4/4	-	5.6	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.31	0.7	mg/kg	SS118	3/4	0.18-0.18	0.7	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.021	3.6	mg/kg	SS118	3/4	1.7-1.7	3.6	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.039	0.19	mg/kg	SS38	3/4	0.18-0.18	0.19	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.019	4	mg/kg	SS118	4/4	-	4	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.15	0.31	mg/kg	SS118	3/4	0.18-0.18	0.31	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.027	5.6	mg/kg	SS118	4/4	-	5.6	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.12	0.16	mg/kg	SS118	2/4	0.18-1.7	0.16	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.35	0.86	mg/kg	SS118	3/4	0.18-0.18	0.86	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.039	0.039	mg/kg	SS118	1/4	0.18-1.7	0.039	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.028	0.036	mg/kg	SS118	2/4	0.18-1.7	0.036	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.33	1.7	mg/kg	SS118	3/4	0.18-0.18	1.7	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.02	3.7	mg/kg	SS118	4/4	-	3.7	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11096-82-5	Aroclor-1260	0.021	0.095	mg/kg	SS38	3/4	0.036-0.036	0.095	NA	0.221	c	1	CT RSR	NO	BSL

TABLE A-2.1d3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area D3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Metals														
	7429-90-5	Aluminum	3900	10400	mg/kg	SS38	4/4	-	10400	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.4	11.8	mg/kg	SS38	4/4	-	11.8	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	29	71.3	mg/kg	SS38	4/4	-	71.3	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.22	0.39	mg/Kg	SS114	3/4	2.9-3.1	0.39	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.11	0.22	mg/Kg	SS118	3/4	4.3-4.6	0.22	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	640	1800	mg/Kg	SS114	3/3	-	1800	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	5.4	29.5	mg/kg	SS38	4/4	-	29.5	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.2	5.3	mg/kg	SS114	4/4	-	5.3	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	22.3	194	mg/kg	SS38	4/4	-	194	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6720	13000	mg/Kg	SS118	3/3	-	13000	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	28.2	536	mg/kg	SS38	4/4	-	536	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	1300	2840	mg/Kg	SS114	3/3	-	2840	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	106	202	mg/Kg	SS118	3/3	-	202	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.019	0.2	mg/kg	SS38	3/4	0.11-0.11	0.2	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	5.5	19.2	mg/kg	SS38	4/4	-	19.2	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	979	1980	mg/Kg	SS114	3/3	-	1980	NA	NA		NA		NO	Essential Nutrient
	7440-22-4	Silver	0.13	0.28	mg/Kg	SS114	3/4	4.3-4.6	0.28	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	49.2	91.9	mg/Kg	SS114	3/3	-	91.9	NA	NA		NA		NO	Essential Nutrient
	7440-31-5	Tin	3.6	4.4	mg/kg	SS38	1/1	-	4.4	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	10.6	53.6	mg/kg	SS38	4/4	-	53.6	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	34.7	197	mg/kg	SS38	4/4	-	197	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2d3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area D3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.013	0.014	mg/kg	SS38	1/8	0.011-0.98	0.014	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.022	0.071	mg/kg	SB128	4/8	0.19-1.7	0.071	NA	782	n	NA	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0021	0.0021	mg/kg	SB38	1/8	0.0018-0.013	0.0021	NA	0.0286	c	0.036	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.011	0.011	mg/kg	SS38	1/8	0.0018-0.011	0.011	NA	0.27	c	0.34	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.39	0.46	mg/kg	SS38	2/8	0.18-1.4	0.46	NA	34.7	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.16	0.16	mg/kg	SS38	1/8	0.18-1.4	0.16	NA	256	c	1000	CT RSR	NO	BSL
	57-74-9	Chlordane	0.58	0.79	mg/kg	SS38	1/3	0.018-0.021	0.79	NA	1.62	c	0.49	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0013	0.0013	mg/kg	SB128	1/5	0.0018-0.0019	0.0013	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.000279	0.000279	mg/kg	SS38	1/8	0.000525-3.4	0.000279	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0036	0.0086	mg/kg	SB128	2/7	0.0035-0.022	0.0086	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0047	0.12	mg/kg	SS38	3/8	0.0035-0.004	0.12	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0032	0.15	mg/kg	SS38	5/8	0.0035-0.0037	0.15	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.062	0.076	mg/kg	SS118	2/8	0.18-1.7	0.076	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.002	0.021	mg/kg	SS38	2/8	0.0035-0.004	0.021	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.022	0.092	mg/kg	SS38	3/8	0.18-0.19	0.092	NA	611	n	1000	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0024	0.021	mg/kg	SS38	3/7	0.0035-0.022	0.021	NA	36.7	n	410	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0022	0.005	mg/kg	SB128	2/8	0.0035-0.022	0.005	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0045	0.015	mg/kg	SB128	2/7	0.0035-0.022	0.015	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0021	0.011	mg/kg	SS38	2/7	0.0018-0.0019	0.011	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.017	0.017	mg/kg	SB38	1/7	0.018-0.11	0.017	NA	30.6	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.54	0.54	mg/kg	SB128	1/5	0.28-0.49	0.54	NA	7820	n	NA	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.023	0.1	mg/kg	SB38	4/8	0.18-1.7	0.1	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.078	3.2	mg/kg	SB38	7/8	0.18-0.18	3.2	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.058	1.6	mg/kg	SB38	7/8	0.18-0.18	1.6	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.17	4.4	mg/kg	SB38	7/8	0.18-0.18	4.4	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.022	4.7	mg/kg	SB38	8/8	-	4.7	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.026	7.6	mg/kg	SB38	8/8	-	7.6	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.091	3.9	mg/kg	SB38	7/8	0.18-0.18	3.9	NA	3.57	c	1000	CT RSR	YES	ASL
	207-08-9	Benzo(k)fluoranthene	0.021	3.6	mg/kg	SS118	6/8	1.4-1.7	3.6	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.039	0.32	mg/kg	SB38	6/8	0.18-0.39	0.32	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.019	5.7	mg/kg	SB38	8/8	-	5.7	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.038	1.6	mg/kg	SB38	7/8	0.18-0.18	1.6	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.027	8	mg/kg	SB38	8/8	-	8	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.021	0.16	mg/kg	SS118	4/8	0.18-1.7	0.16	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.072	3.2	mg/kg	SB38	7/8	0.18-0.18	3.2	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.037	0.053	mg/kg	SB128	3/8	0.18-1.7	0.053	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.024	0.037	mg/kg	SB128	4/8	0.18-1.7	0.037	NA	3.57	c	1000	CT RSR	NO	BSL

TABLE A-2.2d3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area D3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	85-01-8	Phenanthrene	0.22	2.9	mg/kg	SB38	7/8	0.18-0.18	2.9	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.02	8.4	mg/kg	SB38	8/8	-	8.4	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11096-82-5	Aroclor-1260	0.0049	0.12	mg/kg	SB128	6/8	0.036-0.037	0.12	NA	0.221	c	1	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.001	0.009	mg/kg	SB38	2/8	0.007-0.49	0.009	NA	0.554	c	12	CT RSR	NO	BSL
	95-95-4	2,4,5-Trichlorophenol	0.13	0.13	mg/kg	SB38	1/8	0.18-8.4	0.13	NA	611	n	1000	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	3170	10400	mg/kg	SS38	8/8	-	10400	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.4	11.8	mg/kg	SS38	8/8	-	11.8	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	29	85.7	mg/kg	SB122	8/8	-	85.7	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.22	0.64	mg/Kg	SB122	5/8	2.5-3.1	0.64	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.11	0.64	mg/Kg	SB128	5/8	3.8-4.6	0.64	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	640	9200	mg/Kg	SB128	5/5	-	9200	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	5.4	29.5	mg/kg	SS38	8/8	-	29.5	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.2	6.1	mg/kg	SB38	8/8	-	6.1	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	22.3	194	mg/kg	SS38	8/8	-	194	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6720	13300	mg/Kg	SB128	5/5	-	13300	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	28.2	536	mg/kg	SS38	8/8	-	536	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	1300	2840	mg/Kg	SS114	5/5	-	2840	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	106	240	mg/Kg	SB128	5/5	-	240	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.019	0.2	mg/kg	SS38	7/8	0.11-0.11	0.2	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	5.5	19.2	mg/kg	SS38	8/8	-	19.2	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	900	1980	mg/Kg	SS114	5/5	-	1980	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-22-4	Silver	0.13	0.63	mg/Kg	SB128	5/8	3.8-4.6	0.63	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	49.2	130	mg/Kg	SB122	5/5	-	130	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-31-5	Tin	2.1	4.4	mg/kg	SS38	3/3	-	4.4	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	10.6	53.6	mg/kg	SS38	8/8	-	53.6	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	34.7	261	mg/kg	SB128	8/8	-	261	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1e1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E1 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.003	0.009	mg/kg	SS04	2/14	0.01-0.012	0.009	NA	6130	n	500	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.3	4.2	mg/kg	SS-17	2/14	0.34-0.48	4.2	NA	34.7	c	44	CT RSR	NO	BSL
	74-83-9	Bromomethane	0.001	0.001	mg/kg	SS04	1/14	0.005-0.012	0.001	NA	0.732	n	95	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.05	0.05	mg/kg	SS-17	1/14	0.34-0.48	0.05	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.064	0.064	mg/kg	SS04	1/2	0.4-0.45	0.064	NA	3060	n	NA	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0032	0.016	mg/kg	SS-18	3/12	0.0018-0.0024	0.016	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.00047	0.015	mg/kg	SS04	5/8	0.0019-0.0024	0.015	NA	1.62	c	NA	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.00046	0.044	mg/kg	SS-18	7/11	0.0034-0.0048	0.044	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0039	0.0085	mg/kg	SS-18	4/8	0.0035-0.0048	0.0085	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.45	0.45	mg/kg	SS-21	1/14	0.34-0.48	0.45	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.00063	0.021	mg/kg	SS-18	3/14	0.0034-0.0048	0.021	NA	0.0303	c	0.038	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.12	0.12	mg/kg	SS-22	1/14	0.34-0.48	0.12	NA	NA		1000	CT RSR	YES	NBA
	33213-65-9	Endosulfan II	0.0045	0.0045	mg/kg	SS-18	1/14	0.0034-0.0048	0.0045	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0023	0.0069	mg/kg	SS-21	4/13	0.0034-0.0048	0.0069	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.005	0.005	mg/kg	SS-21	1/11	0.0034-0.0078	0.005	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.00072	0.0071	mg/kg	SS-21	5/14	0.0034-0.0048	0.0071	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.00065	0.003	mg/kg	SS-18	2/14	0.0034-0.0048	0.003	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00022	0.0037	mg/kg	SS-18	7/14	0.0018-0.0024	0.0037	NA	0.0533	c	0.067	CT RSR	NO	BSL
	1634-04-4	MTBE	0.008	0.008	mg/kg	SS03, SS04	2/2	-	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.046	0.55	mg/kg	SS-21	2/14	0.34-0.48	0.55	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.18	0.18	mg/kg	SS-21	1/14	0.34-0.48	0.18	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.048	1.7	mg/kg	SS-21	4/14	0.34-0.48	1.7	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.047	3.3	mg/kg	SS-21	12/14	0.34-0.35	3.3	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.054	2.7	mg/kg	SS-21	12/14	0.34-0.35	2.7	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.065	2.3	mg/kg	SS-21	12/14	0.34-0.35	2.3	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.041	0.71	mg/kg	SS-21	11/14	0.34-0.48	0.71	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.069	1.3	mg/kg	SS-21	12/14	0.34-0.39	1.3	NA	1.48	c	8.4	CT RSR	NO	BSL
	86-74-8	Carbazole	0.034	0.99	mg/kg	SS-21	3/13	0.34-0.4	0.99	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.08	3.2	mg/kg	SS-21	12/14	0.34-0.35	3.2	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.031	0.32	mg/kg	SS-21	7/14	0.34-0.48	0.32	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.12	6.9	mg/kg	SS-21	12/14	0.34-0.35	6.9	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.043	0.76	mg/kg	SS-21	3/14	0.34-0.48	0.76	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.043	1.4	mg/kg	SS-21	11/13	0.34-0.35	1.4	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.18	0.18	mg/kg	SS-21	1/14	0.34-0.48	0.18	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.36	0.36	mg/kg	SS-21	1/14	0.005-0.4	0.36	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.042	7.6	mg/kg	SS-21	12/14	0.34-0.35	7.6	NA	1720	n	1000	CT RSR	NO	BSL

TABLE A-2.1e1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E1 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	129-00-0	Pyrene	0.09	7.2	mg/kg	SS-21	12/14	0.34-0.35	7.2	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.043	0.14	mg/kg	SS04	4/14	0.034-0.04	0.14	NA	0.112	n	1	CT RSR	YES	ASL
	11096-82-5	Aroclor-1260	0.068	0.081	mg/kg	SS-19	2/14	0.034-0.048	0.081	NA	0.221	c	1	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	3730	12100	mg/kg	SS03	14/14	-	12100	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.2	7	mg/kg	SS-17	14/14	-	7	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	20.8	190	mg/kg	SS-17	14/14	-	190	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.38	0.63	mg/kg	SS03	10/14	0.25-0.5084	0.63	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.15	0.65	mg/kg	SS-20	6/14	0.08-0.146	0.65	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	630	2490	mg/kg	SS04	13/14	454-454	2490	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	4.5	31.1	mg/kg	SS-17	14/14	-	31.1	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.1	6.7	mg/kg	SS03	14/14	-	6.7	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	16.5	163	mg/kg	SS-20	6/14	9.5-60.2	163	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6060	14800	mg/kg	SS03	14/14	-	14800	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	13.2	71.2	mg/kg	SS-21	12/14	5-7	71.2	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	912	2860	mg/kg	SS03	14/14	-	2860	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	140	308	mg/kg	SS03	14/14	-	308	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.06	0.13	mg/kg	SS04	2/14	0.06-1.2	0.13	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	4.3	14.6	mg/kg	SS-20	14/14	-	14.6	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	526	2190	mg/kg	SS-22	14/14	-	2190	NA	NA		NA		NO	Essential Nutrient
	7440-22-4	Silver	0.49	1.2	mg/kg	SS-21	5/14	0.2145-0.85	1.2	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	443	686	mg/kg	SS03	2/14	134-216	686	NA	NA		NA		NO	Essential Nutrient
	7440-62-2	Vanadium	8.7	71.8	mg/kg	SS04	14/14	-	71.8	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	31.1	221	mg/kg	SS-20	13/14	14.2-14.2	221	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2e1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.003	0.042	mg/kg	SB05	4/20	0.01-0.73	0.042	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.027	0.027	mg/kg	SB150	1/10	0.18-2.1	0.027	NA	782	n	NA	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.064	0.1	mg/kg	SB150, SB152	3/10	0.18-2.1	0.1	NA	391	n	NA	CT RSR	NO	BSL
	111-91-1	bis(2-Chloroethoxy)methane	1.9	1.9	mg/kg	SB154	1/22	0.19-2.1	1.9	NA	18.3	n	NA	CT RSR	NO	BSL
	111-44-4	bis(2-Chloroethyl)ether	1.8	1.8	mg/kg	SB154	1/22	0.19-2.1	1.8	NA	0.214	c	1	CT RSR	YES	ASL
	108-60-1	bis(2-Chloroisopropyl) ether	1.3	1.3	mg/kg	SB154	1/22	0.19-2.1	1.3	NA	4.57	c	8.8	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.048	4.2	mg/kg	SS-17	7/22	0.19-2.1	4.2	NA	34.7	c	44	CT RSR	NO	BSL
	74-83-9	Bromomethane	0.001	0.001	mg/kg	SS04	1/20	0.001-0.37	0.001	NA	0.732	n	95	CT RSR	NO	BSL
	101-55-3	4-Bromophenyl phenyl ether	0.81	0.81	mg/kg	SB154	1/22	0.19-2.1	0.81	NA	NA		500	CT RSR	YES	NBA
	78-93-3	2-Butanone	0.008	0.01	mg/kg	SB06	2/20	0.005-0.73	0.01	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.05	1	mg/kg	SB154	2/22	0.19-2.1	1	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.064	0.17	mg/kg	SB154	2/10	0.19-2.1	0.17	NA	3060	n	NA	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0032	0.016	mg/kg	SS-18	4/20	0.0018-0.0024	0.016	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.00047	0.015	mg/kg	SS04	9/16	0.0018-0.0024	0.015	NA	1.62	c	NA	CT RSR	NO	BSL
	106-47-8	4-Chloroaniline	0.031	0.031	mg/kg	SB154	1/22	0.19-2.1	0.031	NA	2.43	c	270	CT RSR	NO	BSL
	91-58-7	2-Chloronaphthalene	1.2	1.2	mg/kg	SB154	1/22	0.19-2.1	1.2	NA	626	n	1000	CT RSR	NO	BSL
	95-57-8	2-Chlorophenol	0.22	0.22	mg/kg	SB154	1/22	0.19-2.1	0.22	NA	39.1	n	339	CT RSR	NO	BSL
	7005-72-3	4-Chlorophenyl phenyl ether	0.63	0.63	mg/kg	SB154	1/22	0.19-2.1	0.63	NA	NA		500	CT RSR	YES	NBA
	57-12-5	Cyanide (total)	10.8	15.9	mg/Kg	SB150	1/20	0.06-4.1	15.9	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0046	0.015	mg/kg	SB153	2/21	0.0034-0.0048	0.015	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.00046	0.044	mg/kg	SS-18	7/19	0.0034-0.0048	0.044	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0039	0.012	mg/kg	SB153	7/16	0.0034-0.0048	0.012	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.43	0.75	mg/kg	SB150	5/22	0.34-2.1	0.75	NA	7.82	n	270	CT RSR	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	0.083	0.092	mg/kg	SB150	2/8	0.001-0.32	0.092	NA	78.2	n	500	CT RSR	NO	BSL
	120-83-2	2,4-Dichlorophenol	0.53	0.53	mg/kg	SB154	1/22	0.19-2.1	0.53	NA	18.3	n	203	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.00063	0.021	mg/kg	SS-18	5/22	0.0034-0.0048	0.021	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.031	0.031	mg/kg	SB150	1/22	0.18-2.1	0.031	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.12	1.4	mg/kg	SB154	2/22	0.19-2.1	1.4	NA	NA		1000	CT RSR	YES	NBA
	121-14-2	2,4-Dinitrotoluene	0.53	0.53	mg/kg	SB154	1/22	0.19-2.1	0.53	NA	1.56	c	140	CT RSR	NO	BSL
	606-20-2	2,6-Dinitrotoluene	1.2	1.2	mg/kg	SB154	1/22	0.19-2.1	1.2	NA	6.12	n	68	CT RSR	NO	BSL
		Dioxins/Furans														
	1746-01-6	2,3,7,8-TCDD	0.000000353	0.000000392	mg/kg	SB150	2/2	-	0.000000392	NA	0.00000449	c	NA	CT RSR	NO	(3)
	40321-76-4	1,2,3,7,8-PeCDD	0.00000143	0.00000144	mg/kg	SB153	2/2	-	0.00000144	NA	NA		NA	CT RSR	NO	(3)
	39227-28-6	1,2,3,4,7,8-HxCDD	0.00000123	0.00000149	mg/kg	SB150	2/2	-	0.00000149	NA	NA		NA	CT RSR	NO	(3)
	57653-85-7	1,2,3,6,7,8-HxCDD	0.00000914	0.0000115	mg/kg	SB153	2/2	-	0.0000115	NA	NA		NA	CT RSR	NO	(3)
	19408-74-3	1,2,3,7,8,9-HxCDD	0.00000313	0.00000382	mg/kg	SB150	2/2	-	0.00000382	NA	NA		NA	CT RSR	NO	(3)
	35822-46-9	1,2,3,4,6,7,8-HpCDD	0.0000747	0.000179	mg/kg	SB150	2/2	-	0.000179	NA	NA		NA	CT RSR	NO	(3)
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	0.000428	0.00205	mg/kg	SB150	2/2	-	0.00205	NA	NA		NA	CT RSR	NO	(3)
	41903-57-5	Total TCDD	0.00000883	0.0000096	mg/kg	SB150	2/2	-	0.0000096	NA	NA		NA	CT RSR	NO	(3)

TABLE A-2.2e1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	36088-22-9	Total PeCDD	0.0000202	0.0000213	mg/kg	SB153	2/2	-	0.0000213	NA	NA		NA	CT RSR	NO	(3)
	34465-46-8	Total HxCDD	0.0000565	0.000062	mg/kg	SB153	2/2	-	0.000062	NA	NA		NA	CT RSR	NO	(3)
	37871-00-4	Total HpCDD	0.000156	0.000346	mg/kg	SB150	2/2	-	0.000346	NA	NA		NA	CT RSR	NO	(3)
	51207-31-9	2,3,7,8-TCDF	0.00000223	0.00000417	mg/kg	SB150	2/2	-	0.00000417	NA	NA		NA	CT RSR	NO	(3)
	57117-41-6	1,2,3,7,8-PeCDF	0.00000207	0.00000239	mg/kg	SB150	2/2	-	0.00000239	NA	NA		NA	CT RSR	NO	(3)
	57117-31-4	2,3,4,7,8-PeCDF	0.00000404	0.00000491	mg/kg	SB150	2/2	-	0.00000491	NA	NA		NA	CT RSR	NO	(3)
	70648-26-9	1,2,3,4,7,8-HxCDF	0.00000675	0.00000812	mg/kg	SB150	2/2	-	0.00000812	NA	NA		NA	CT RSR	NO	(3)
	57117-44-9	1,2,3,6,7,8-HxCDF	0.00000594	0.00000743	mg/kg	SB150	2/2	-	0.00000743	NA	NA		NA	CT RSR	NO	(3)
	72918-21-9	1,2,3,7,8,9-HxCDF	0.00000256	0.00000261	mg/kg	SB150	2/2	-	0.00000261	NA	NA		NA	CT RSR	NO	(3)
	60851-34-5	2,3,4,6,7,8-HxCDF	0.00000833	0.0000105	mg/kg	SB150	2/2	-	0.0000105	NA	NA		NA	CT RSR	NO	(3)
	67562-39-4	1,2,3,4,6,7,8-HpCDF	0.0000807	0.0000811	mg/kg	SB150	2/2	-	0.0000811	NA	NA		NA	CT RSR	NO	(3)
	55673-89-7	1,2,3,4,7,8,9-HpCDF	0.00000403	0.000005	mg/kg	SB150	2/2	-	0.000005	NA	NA		NA	CT RSR	NO	(3)
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	0.0000851	0.000249	mg/kg	SB150	2/2	-	0.000249	NA	NA		NA	CT RSR	NO	(3)
	55722-27-5	Total TCDF	0.0000696	0.0000986	mg/kg	SB150	2/2	-	0.0000986	NA	NA		NA	CT RSR	NO	(3)
	30402-15-4	Total PeCDF	0.000126	0.000205	mg/kg	SB150	2/2	-	0.000205	NA	NA		NA	CT RSR	NO	(3)
	55684-94-1	Total HxCDF	0.000124	0.000158	mg/kg	SB150	2/2	-	0.000158	NA	NA		NA	CT RSR	NO	(3)
	38998-75-3	Total HpCDF	0.000179	0.000238	mg/kg	SB150	2/2	-	0.000238	NA	NA		NA	CT RSR	NO	(3)
		2,3,7,8-TCDD TEQ	0.00000898	0.0000114	mg/kg	SB150	2/2	-	0.0000114	NA	NA		NA	CT RSR	YES	NBA
	959-98-8	Endosulfan I	0.0012	0.0016	mg/kg	SB150	2/21	0.0018-0.0099	0.0016	NA	36.7	n	410	CT RSR	NO	BSL
	33213-65-9	Endosulfan II	0.0045	0.0045	mg/kg	SS-18	1/22	0.0034-0.0048	0.0045	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0023	0.011	mg/kg	SB154	6/20	0.0034-0.0048	0.011	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0026	0.005	mg/kg	SS-21	2/19	0.0034-0.0078	0.005	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.00072	0.0077	mg/kg	SB153	7/21	0.0034-0.0048	0.0077	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.00065	0.018	mg/kg	SB153	6/21	0.0034-0.0048	0.018	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00022	0.0037	mg/kg	SS-18	8/22	0.0018-0.0024	0.0037	NA	0.0533	c	0.067	CT RSR	NO	BSL
	118-74-1	Hexachlorobenzene	0.63	0.63	mg/kg	SB154	1/22	0.19-2.1	0.63	NA	0.303	c	1	CT RSR	YES	ASL
	77-47-4	Hexachlorocyclopentadiene	0.45	0.45	mg/kg	SB154	1/22	0.19-2.1	0.45	NA	36.6	n	470	CT RSR	NO	BSL
	67-72-1	Hexachloroethane	0.79	0.79	mg/kg	SB154	1/22	0.19-2.1	0.79	NA	6.11	n	44	CT RSR	NO	BSL
	78-59-1	Isophorone	0.69	0.69	mg/kg	SB154	1/22	0.19-2.1	0.69	NA	511	c	640	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.014	0.055	mg/kg	SB153	2/21	0.018-0.1	0.055	NA	30.6	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.13	7.3	mg/kg	SB152	4/4	-	7.3	NA	7820	n	NA	CT RSR	NO	BSL
	106-44-5	4-Methylphenol	0.028	0.032	mg/kg	SB152	3/22	0.18-2.1	0.032	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.007	0.008	mg/kg	SS03, SS04	4/8	0.25-0.37	0.008	NA	43.3	c	500	CT RSR	NO	BSL
	621-64-7	N-Nitrosodi-n-propylamine	1	1	mg/kg	SB154	1/22	0.19-2.1	1	NA	0.0694	c	1	CT RSR	YES	ASL

TABLE A-2.2e1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
		PAHs														
	83-32-9	Acenaphthene	0.043	1.1	mg/kg	SB153	6/22	0.34-2.1	1.1	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.18	0.44	mg/kg	SB154	5/22	0.34-2.1	0.44	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.044	3.1	mg/kg	SB150	9/22	0.34-2.1	3.1	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.047	7.2	mg/kg	SB153	19/22	0.34-0.35	7.2	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.054	7.3	mg/kg	SB153	18/22	0.18-0.35	7.3	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.065	11	mg/kg	SB153	19/22	0.34-0.35	11	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.041	1.8	mg/kg	SB153	16/22	0.18-2.1	1.8	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.069	6.3	mg/kg	SB153	19/22	0.34-0.39	6.3	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.034	1.6	mg/kg	SB150	7/20	0.34-0.42	1.6	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.08	8.2	mg/kg	SB153	18/22	0.18-0.35	8.2	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.031	0.6	mg/kg	SB153	10/22	0.18-2.1	0.6	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.12	22	mg/kg	SB153	18/22	0.18-0.35	22	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.043	1.4	mg/kg	SB150	7/22	0.34-2.1	1.4	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.043	2.1	mg/kg	SB153	16/20	0.18-0.35	2.1	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.14	0.33	mg/kg	SB152	4/22	0.18-2.1	0.33	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.35	0.81	mg/kg	SB152	5/24	0.001-2.1	0.81	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.042	15	mg/kg	SB150	18/22	0.18-0.35	15	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.09	11	mg/kg	SB150	18/22	0.18-0.35	11	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.043	0.37	mg/kg	SB150	6/22	0.034-0.042	0.37	NA	0.112	n	1	CT RSR	YES	ASL
	11096-82-5	Aroclor-1260	0.068	0.49	mg/kg	SB13	5/22	0.034-0.048	0.49	NA	0.221	c	1	CT RSR	YES	ASL
	87-86-5	Pentachlorophenol	0.28	0.28	mg/kg	SB154	1/22	0.37-5.2	0.28	NA	2.97	c	5.1	CT RSR	NO	BSL
	95-94-3	1,2,4,5-Tetrachlorobenzene	0.82	0.82	mg/kg	SB154	1/4	0.19-0.2	0.82	NA	1.83	n	20	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.063	0.26	mg/kg	SB152	2/20	0.001-0.37	0.26	NA	2.82	c	56	CT RSR	NO	BSL
	95-95-4	2,4,5-Trichlorophenol	0.54	0.54	mg/kg	SB154	1/22	0.19-5.2	0.54	NA	611	n	1000	CT RSR	NO	BSL
	75-01-4	Vinyl chloride	0.095	0.12	mg/kg	SB150	1/20	0.001-0.32	0.12	NA	0.0597	c	0.32	CT RSR	YES	ASL
		Metals														
	7429-90-5	Aluminum	3730	13100	mg/kg	SB05	21/21	-	13100	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.2	7	mg/kg	SS-17	21/21	-	7	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	20.8	190	mg/kg	SS-17	21/21	-	190	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.27	0.63	mg/kg	SS03	16/21	0.25-0.5084	0.63	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.15	2.1	mg/kg	SB152	13/21	0.08-0.146	2.1	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	630	9900	mg/kg	SB152	20/21	454-454	9900	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	4.5	38.5	mg/kg	SB150	21/21	-	38.5	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.1	10.2	mg/kg	SB05	21/21	-	10.2	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	16.5	2530	mg/kg	SB150	13/21	9.5-60.2	2530	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6060	23400	mg/kg	SB152	21/21	-	23400	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	13.2	186	mg/kg	SB150	19/21	5-7	186	NA	400		400	CT RSR	NO	BSL

TABLE A-2.2e1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7439-95-4	Magnesium	912	4380	mg/kg	SB05	21/21	-	4380	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	140	346	mg/kg	SB154	21/21	-	346	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.051	3.3	mg/kg	SB150	7/21	0.0585-1.2	3.3	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	4.3	132	mg/kg	SB150	21/21	-	132	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	526	3550	mg/kg	SB05	21/21	-	3550	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.79	0.79	mg/kg	SB13	1/21	0.61-4.4	0.79	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.26	1.4	mg/kg	SB150	10/21	0.2105-0.85	1.4	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	58.6	844	mg/kg	SB05	9/21	134-216	844	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-62-2	Vanadium	8.7	774	mg/kg	SB150	21/21	-	774	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	31.1	1850	mg/kg	SB150	20/21	14.2-14.2	1850	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

(3) Evaluated as 2,3,7,8-TCDD TEQ.

Surrogate screening values used:

- Endosulfan value used for Endosulfan I, Endosulfan II, and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1e2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E2 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.004	0.006	mg/kg	SS25	3/10	0.011-1.6	0.006	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.015	0.027	mg/kg	SS25	2/6	0.18-0.19	0.027	NA	782	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.038	0.74	mg/kg	SS25	9/10	0.19-0.19	0.74	NA	34.7	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.05	0.23	mg/kg	SS25	4/10	0.18-0.4	0.23	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.029	0.029	mg/kg	SS143	1/6	0.18-0.38	0.029	NA	3060	n	NA	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0019	0.017	mg/kg	SS25	4/9	0.0018-0.002	0.017	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0072	0.014	mg/kg	SS25	2/10	0.0018-0.0092	0.014	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.07	0.38	mg/kg	SS26, SS-39	4/9	0.28-2.9	0.38	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.011	0.011	mg/kg	SS26	1/10	0.0035-0.018	0.011	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0026	0.023	mg/kg	SS142	9/10	0.0036-0.0036	0.023	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0043	0.03	mg/kg	SS25	9/10	0.0036-0.0036	0.03	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.019	0.024	mg/kg	SS26	3/10	0.18-0.76	0.024	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0016	0.0026	mg/kg	SS142	3/10	0.0036-0.035	0.0026	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.015	0.043	mg/kg	SS25	4/10	0.18-0.76	0.043	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.028	0.028	mg/kg	SS26	1/10	0.18-0.76	0.028	NA	NA		1000	CT RSR	YES	NBA
	1031-07-8	Endosulfan sulfate	0.0019	0.0083	mg/kg	SS-40	4/10	0.0035-0.0038	0.0083	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0034	0.0034	mg/kg	SS-39	1/10	0.0035-0.018	0.0034	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0044	0.0044	mg/kg	SS26	1/10	0.0035-0.018	0.0044	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0016	0.0074	mg/kg	SS26	3/10	0.0035-0.004	0.0074	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0035	0.0035	mg/kg	SS25	1/10	0.0018-0.0092	0.0035	NA	0.0533	c	0.067	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.096	0.096	mg/kg	SS142	1/4	0.31-0.81	0.096	NA	7820	n	NA	CT RSR	NO	BSL
	1634-04-4	MTBE	0.007	0.008	mg/kg	SS25	2/6	0.31-0.81	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.019	0.13	mg/kg	SS-40	5/10	0.18-0.4	0.13	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.045	0.17	mg/kg	SS26	6/10	0.36-0.76	0.17	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.019	0.22	mg/kg	SS-40	8/10	0.38-0.4	0.22	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.09	1.8	mg/kg	SS-40	10/10	-	1.8	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.081	1.5	mg/kg	SS-40	10/10	-	1.5	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.1	2.7	mg/kg	SS-40	10/10	-	2.7	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.064	1.4	mg/kg	SS-40	10/10	-	1.4	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.12	1.3	mg/kg	SS-40	10/10	-	1.3	NA	1.48	c	8.4	CT RSR	NO	BSL
	86-74-8	Carbazole	0.036	0.39	mg/kg	SS-40	6/10	0.18-0.4	0.39	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.12	2.2	mg/kg	SS-40	10/10	-	2.2	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.02	0.24	mg/kg	SS26, SS-40	8/10	0.38-0.4	0.24	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.27	4.8	mg/kg	SS-40	10/10	-	4.8	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.038	0.12	mg/kg	SS-40	4/10	0.18-0.4	0.12	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.078	1.6	mg/kg	SS-40	10/10	-	1.6	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.021	0.06	mg/kg	SS145	3/10	0.18-0.76	0.06	NA	31.3	n	474	CT RSR	NO	BSL

TABLE A-2.1e2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E2 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	85-01-8	Phenanthrene	0.1	1.8	mg/kg	SS-40	10/10	-	1.8	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.21	3.9	mg/kg	SS-40	10/10	-	3.9	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.094	0.094	mg/kg	SS142	1/10	0.035-0.18	0.094	NA	0.112	n	1	CT RSR	NO	BSL
	11096-82-5	Aroclor-1260	0.055	0.055	mg/kg	SS142	1/10	0.035-0.18	0.055	NA	0.221	c	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	0.001	mg/kg	SS-39	1/10	0.001-0.81	0.001	NA	497	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	4190	9430	mg/kg	SS143	10/10	-	9430	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	4.8	4.8	mg/kg	SS-39	1/9	0.44-6.7	4.8	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.2	3.6	mg/kg	SS145, SS-39	9/10	0.87-0.87	3.6	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	23.5	70.2	mg/kg	SS145	10/10	-	70.2	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.14	0.41	mg/kg	SS143	8/10	0.22-0.29	0.41	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.25	1.8	mg/kg	SS142	9/10	0.0896-0.0896	1.8	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	467	1410	mg/kg	SS26	10/10	-	1410	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	9.8	14.7	mg/kg	SS25	10/10	-	14.7	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.6	6.3	mg/kg	SS26	10/10	-	6.3	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	46.1	412	mg/kg	SS145	7/10	50.2-53.2	412	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	7570	14800	mg/kg	SS143	10/10	-	14800	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	42.8	120	mg/kg	SS-39	10/10	-	120	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	1490	3390	mg/kg	SS25	10/10	-	3390	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	115	227	mg/kg	SS-39	10/10	-	227	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.06	0.37	mg/Kg	SS144	5/10	0.1088-1.3	0.37	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	7.3	57.6	mg/kg	SS145	10/10	-	57.6	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	471	3410	mg/kg	SS25	10/10	-	3410	NA	NA		NA		NO	Essential Nutrient
	7782-49-2	Selenium	0.79	0.88	mg/kg	SS25	2/10	0.62-4	0.88	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.3	3.4	mg/kg	SS145	6/10	0.1931-0.81	3.4	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	38	614	mg/Kg	SS25	5/10	105.9944-173	614	NA	NA		NA		NO	Essential Nutrient
	7440-62-2	Vanadium	15	38.1	mg/kg	SS-39	10/10	-	38.1	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	51.9	358	mg/kg	SS145	10/10	-	358	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2e2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E2 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.004	0.006	mg/kg	SS25	3/12	0.011-1.6	0.006	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.015	0.027	mg/kg	SS25	2/8	0.18-0.24	0.027	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.19	0.19	mg/kg	SB162	1/8	0.18-0.38	0.19	NA	782	n	NA	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.052	0.052	mg/kg	SB155	1/8	0.18-0.38	0.052	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.03	0.74	mg/kg	SS25	10/12	0.19-0.2	0.74	NA	34.7	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.05	0.23	mg/kg	SS25	4/12	0.18-0.4	0.23	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.029	0.029	mg/kg	SS143	1/8	0.18-0.38	0.029	NA	3060	n	NA	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0019	0.017	mg/kg	SS25	4/11	0.0018-0.0024	0.017	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0072	0.014	mg/kg	SS25	2/12	0.0018-0.0092	0.014	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.07	0.38	mg/kg	SS26, SS-39	4/11	0.28-3.8	0.38	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.011	0.011	mg/kg	SS26	1/12	0.0035-0.018	0.011	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0026	0.023	mg/kg	SS142	9/12	0.0036-0.0047	0.023	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0043	0.03	mg/kg	SS25	9/12	0.0036-0.0047	0.03	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.019	0.32	mg/kg	SB155	4/12	0.18-0.76	0.32	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0016	0.0026	mg/kg	SS142	3/12	0.0036-0.035	0.0026	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.015	0.043	mg/kg	SS25	4/12	0.18-0.76	0.043	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.028	0.028	mg/kg	SS26	1/12	0.18-0.76	0.028	NA	NA		1000	CT RSR	YES	NBA
		Dioxins/Furans														
	40321-76-4	1,2,3,7,8-PeCDD	0.000000918	0.000000918	mg/kg	SB155	1/1	-	0.000000918	NA	NA		NA	CT RSR	NO	(3)
	39227-28-6	1,2,3,4,7,8-HxCDD	0.000000997	0.000000997	mg/kg	SB155	1/1	-	0.000000997	NA	NA		NA	CT RSR	NO	(3)
	57653-85-7	1,2,3,6,7,8-HxCDD	0.00000391	0.00000391	mg/kg	SB155	1/1	-	0.00000391	NA	NA		NA	CT RSR	NO	(3)
	19408-74-3	1,2,3,7,8,9-HxCDD	0.0000025	0.0000025	mg/kg	SB155	1/1	-	0.0000025	NA	NA		NA	CT RSR	NO	(3)
	35822-46-9	1,2,3,4,6,7,8-HpCDD	0.0000771	0.0000771	mg/kg	SB155	1/1	-	0.0000771	NA	NA		NA	CT RSR	NO	(3)
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	0.000668	0.000668	mg/kg	SB155	1/1	-	0.000668	NA	NA		NA	CT RSR	NO	(3)
	41903-57-5	Total TCDD	0.00000543	0.00000543	mg/kg	SB155	1/1	-	0.00000543	NA	NA		NA	CT RSR	NO	(3)
	36088-22-9	Total PeCDD	0.0000123	0.0000123	mg/kg	SB155	1/1	-	0.0000123	NA	NA		NA	CT RSR	NO	(3)
	34465-46-8	Total HxCDD	0.0000331	0.0000331	mg/kg	SB155	1/1	-	0.0000331	NA	NA		NA	CT RSR	NO	(3)
	37871-00-4	Total HpCDD	0.000182	0.000182	mg/kg	SB155	1/1	-	0.000182	NA	NA		NA	CT RSR	NO	(3)
	51207-31-9	2,3,7,8-TCDF	0.00000194	0.00000194	mg/kg	SB155	1/1	-	0.00000194	NA	NA		NA	CT RSR	NO	(3)
	57117-41-6	1,2,3,7,8-PeCDF	0.00000186	0.00000186	mg/kg	SB155	1/1	-	0.00000186	NA	NA		NA	CT RSR	NO	(3)
	57117-31-4	2,3,4,7,8-PeCDF	0.00000263	0.00000263	mg/kg	SB155	1/1	-	0.00000263	NA	NA		NA	CT RSR	NO	(3)
	70648-26-9	1,2,3,4,7,8-HxCDF	0.00000532	0.00000532	mg/kg	SB155	1/1	-	0.00000532	NA	NA		NA	CT RSR	NO	(3)
	57117-44-9	1,2,3,6,7,8-HxCDF	0.00000336	0.00000336	mg/kg	SB155	1/1	-	0.00000336	NA	NA		NA	CT RSR	NO	(3)
	72918-21-9	1,2,3,7,8,9-HxCDF	0.00000126	0.00000126	mg/kg	SB155	1/1	-	0.00000126	NA	NA		NA	CT RSR	NO	(3)
	60851-34-5	2,3,4,6,7,8-HxCDF	0.00000393	0.00000393	mg/kg	SB155	1/1	-	0.00000393	NA	NA		NA	CT RSR	NO	(3)
	67562-39-4	1,2,3,4,6,7,8-HpCDF	0.0000531	0.0000531	mg/kg	SB155	1/1	-	0.0000531	NA	NA		NA	CT RSR	NO	(3)
	55673-89-7	1,2,3,4,7,8,9-HpCDF	0.00000325	0.00000325	mg/kg	SB155	1/1	-	0.00000325	NA	NA		NA	CT RSR	NO	(3)
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	0.000113	0.000113	mg/kg	SB155	1/1	-	0.000113	NA	NA		NA	CT RSR	NO	(3)
	55722-27-5	Total TCDF	0.00004	0.00004	mg/kg	SB155	1/1	-	0.00004	NA	NA		NA	CT RSR	NO	(3)

TABLE A-2.2e2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E2 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	30402-15-4	Total PeCDF	0.0000617	0.0000617	mg/kg	SB155	1/1	-	0.0000617	NA	NA		NA	CT RSR	NO	(3)
	55684-94-1	Total HxCDF	0.0000592	0.0000592	mg/kg	SB155	1/1	-	0.0000592	NA	NA		NA	CT RSR	NO	(3)
	38998-75-3	Total HpCDF	0.000112	0.000112	mg/kg	SB155	1/1	-	0.000112	NA	NA		NA	CT RSR	NO	(3)
		2,3,7,8-TCDD TEQ	0.00000565	0.00000565	mg/kg	SB155	1/1	-	0.00000565	NA	NA		NA	CT RSR	YES	NBA
	1031-07-8	Endosulfan sulfate	0.0019	0.0083	mg/kg	SS-40	4/11	0.0035-0.0047	0.0083	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0034	0.0034	mg/kg	SS-39	1/12	0.0035-0.018	0.0034	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0044	0.0044	mg/kg	SS26	1/12	0.0035-0.018	0.0044	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0016	0.0074	mg/kg	SS26	4/12	0.0035-0.0047	0.0074	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0035	0.0035	mg/kg	SS25	1/12	0.0018-0.0092	0.0035	NA	0.0533	c	0.067	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.096	0.096	mg/kg	SS142	1/6	0.31-0.81	0.096	NA	7820	n	NA	CT RSR	NO	BSL
	1634-04-4	MTBE	0.007	0.008	mg/kg	SS25	2/8	0.31-0.81	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.019	0.55	mg/kg	SB155	6/12	0.18-0.4	0.55	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.045	0.18	mg/kg	SB155	7/12	0.24-0.76	0.18	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.019	1.2	mg/kg	SB155	9/12	0.24-0.4	1.2	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.09	2.9	mg/kg	SB155	11/12	0.24-0.24	2.9	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.081	3.3	mg/kg	SB155	11/12	0.24-0.24	3.3	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.1	4	mg/kg	SB155	11/12	0.24-0.24	4	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.064	1.4	mg/kg	SS-40	11/12	0.24-0.24	1.4	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.12	2.2	mg/kg	SB155	11/12	0.24-0.24	2.2	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.036	0.44	mg/kg	SB155	7/12	0.18-0.4	0.44	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.12	3.1	mg/kg	SB155	11/12	0.24-0.24	3.1	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.02	0.24	mg/kg	SS26, SS-40	9/12	0.24-0.4	0.24	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.27	8.5	mg/kg	SB155	11/12	0.24-0.24	8.5	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.038	0.45	mg/kg	SB155	5/12	0.18-0.4	0.45	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.078	1.6	mg/kg	SS-40	11/12	0.24-0.24	1.6	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.021	0.16	mg/kg	SB155	4/12	0.18-0.76	0.16	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.4	0.4	mg/kg	SB155	1/12	0.005-0.76	0.4	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.1	4.9	mg/kg	SB155	11/12	0.24-0.24	4.9	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.21	4.4	mg/kg	SB155	11/12	0.24-0.24	4.4	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.094	0.094	mg/kg	SS142	1/12	0.035-0.18	0.094	NA	0.112	n	1	CT RSR	NO	BSL
	11096-82-5	Aroclor-1260	0.055	0.055	mg/kg	SS142	1/12	0.035-0.18	0.055	NA	0.221	c	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	0.001	mg/kg	SS-39	1/12	0.001-0.81	0.001	NA	497	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	2450	9430	mg/kg	SS143	12/12	-	9430	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	4.8	4.8	mg/kg	SS-39	1/9	0.44-6.7	4.8	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.2	8.1	mg/kg	SB162	11/12	0.87-0.87	8.1	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	23.5	307	mg/kg	SB162	12/12	-	307	NA	1530	n	4700	CT RSR	NO	BSL

TABLE A-2.2e2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E2 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7440-41-7	Beryllium	0.14	1	mg/kg	SB162	10/12	0.22-0.29	1	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.25	12.9	mg/kg	SB162	11/12	0.0896-0.0896	12.9	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	437	9320	mg/kg	SB155	12/12	-	9320	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	5.1	14.7	mg/kg	SS25	12/12	-	14.7	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.6	6.3	mg/kg	SS26	12/12	-	6.3	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	46.1	529	mg/kg	SB155	9/12	50.2-53.2	529	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	2420	14800	mg/kg	SS143	12/12	-	14800	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	5.4	749	mg/kg	SB155	12/12	-	749	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	78.1	3390	mg/kg	SS25	12/12	-	3390	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	54.2	227	mg/kg	SS-39	12/12	-	227	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.06	0.37	mg/Kg	SS144	7/12	0.1088-1.3	0.37	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	7.3	57.6	mg/kg	SS145	12/12	-	57.6	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	135	3410	mg/kg	SS25	12/12	-	3410	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.79	0.88	mg/kg	SS25	2/12	0.62-5.3	0.88	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.3	3.4	mg/kg	SS145	7/12	0.1931-1.5	3.4	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	38	614	mg/Kg	SS25	7/12	105.9944-173	614	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-62-2	Vanadium	14.3	38.1	mg/kg	SS-39	12/12	-	38.1	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	51.9	905	mg/kg	SB155	12/12	-	905	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

(3) Evaluated as 2,3,7,8-TCDD TEQ.

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.

NA = not available.

NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.

BSL = below screening level.

NBA = no screening benchmark available.

TABLE A-2.1e3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.002	0.007	mg/kg	SS-35	3/12	0.011-0.012	0.007	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.012	0.042	mg/kg	SS31	2/2	-	0.042	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.045	0.045	mg/kg	SS31	1/2	0.38-0.38	0.045	NA	782	n	NA	CT RSR	NO	BSL
	319-86-8	delta-BHC	0.0039	0.0039	mg/kg	SS-36	1/12	0.0018-0.0099	0.0039	NA	0.27	c	0.097	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.033	11	mg/kg	SS-36	12/12	-	11	NA	34.7	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.026	0.038	mg/kg	SS31	2/12	0.35-0.77	0.038	NA	256	c	1000	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0028	0.16	mg/kg	SS-34	10/11	0.0018-0.0018	0.16	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.002	0.11	mg/kg	SS-34	7/9	0.0018-0.004	0.11	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.08	1.3	mg/kg	SS-34	12/12	-	1.3	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0018	0.014	mg/kg	SS-36	3/12	0.0038-0.038	0.014	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0017	0.06	mg/kg	SS-36	7/8	0.0041-0.0041	0.06	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0027	0.085	mg/kg	SS-36	8/11	0.0035-0.039	0.085	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.018	0.62	mg/kg	SS-37	5/12	0.35-0.41	0.62	NA	7.82	n	270	CT RSR	NO	BSL
	540-59-0	1,2-Dichloroethene (total)	0.012	0.012	mg/kg	SS-34	1/10	0.011-0.012	0.012	NA	70.4	n	NA	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.00037	0.0089	mg/kg	SS-36	8/11	0.0038-0.019	0.0089	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.024	0.024	mg/kg	SS27	1/12	0.35-0.77	0.024	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.074	0.23	mg/kg	SS-37	2/12	0.35-0.77	0.23	NA	NA		1000	CT RSR	YES	NBA
	33213-65-9	Endosulfan II	0.0043	0.0043	mg/kg	SS31	1/12	0.0035-0.019	0.0043	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0014	0.0094	mg/kg	SS-36	4/12	0.0035-0.039	0.0094	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0029	0.0029	mg/kg	SS31	1/10	0.0035-0.019	0.0029	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.002	0.002	mg/kg	SS-37	1/11	0.0037-0.039	0.002	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.00088	0.011	mg/kg	SS31, SS-35	7/12	0.0037-0.019	0.011	NA	1.83	n	20	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.00071	0.0039	mg/kg	SS-36	2/12	0.0018-0.0099	0.0039	NA	0.108	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0008	0.046	mg/kg	SS-34	9/11	0.0018-0.004	0.046	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0053	0.0053	mg/kg	SS-37	1/10	0.019-0.2	0.0053	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.004	0.004	mg/kg	SS27, SS31	2/2	-	0.004	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.024	0.9	mg/kg	SS-37	5/12	0.35-0.41	0.9	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.038	0.13	mg/kg	SS-37	5/12	0.35-0.77	0.13	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.07	1.4	mg/kg	SS-37	8/12	0.37-0.41	1.4	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.061	3.4	mg/kg	SS-37	11/12	0.37-0.37	3.4	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.046	2.6	mg/kg	SS-37	11/12	0.37-0.37	2.6	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.066	2.8	mg/kg	SS-37	11/12	0.37-0.37	2.8	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.055	1.4	mg/kg	SS-37	11/12	0.37-0.37	1.4	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.048	1.9	mg/kg	SS-37	11/12	0.37-0.37	1.9	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.077	1.1	mg/kg	SS-37	7/12	0.35-0.41	1.1	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.067	3.4	mg/kg	SS-37	11/12	0.37-0.37	3.4	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.039	0.66	mg/kg	SS-37	8/12	0.35-0.41	0.66	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.07	9.3	mg/kg	SS-37	12/12	-	9.3	NA	229	n	1000	CT RSR	NO	BSL

TABLE A-2.1e3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	86-73-7	Fluorene	0.054	1	mg/kg	SS146, SS-37	4/12	0.35-0.41	1	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.045	1.7	mg/kg	SS-37	11/12	0.37-0.37	1.7	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.08	0.086	mg/kg	SS-37	3/12	0.35-0.41	0.086	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.001	0.16	mg/kg	SS-34, SS-37	4/12	0.006-0.41	0.16	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.078	8.2	mg/kg	SS-37	11/12	0.37-0.37	8.2	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.061	8.9	mg/kg	SS-37	12/12	-	8.9	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.044	0.044	mg/kg	SS-35	1/12	0.037-0.19	0.044	NA	0.112	n	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	0.002	mg/kg	SS-33, SS-34	3/12	0.001-0.012	0.002	NA	497	n	500	CT RSR	NO	BSL
	87-61-6	1,2,3-Trichlorobenzene	0.001	0.001	mg/kg	SS27	1/2	0.006-0.006	0.001	NA	4.89	n	NA	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.001	0.001	mg/kg	SS31	1/12	0.001-0.77	0.001	NA	6.19	n	680	CT RSR	NO	BSL
	1330-20-7	Xylene (total)	0.001	0.002	mg/kg	SS-37	3/10	0.011-0.012	0.002	NA	62.7	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	4280	12000	mg/kg	SS-36	12/12	-	12000	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.6	6.2	mg/kg	SS-34	12/12	-	6.2	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	35.7	125	mg/kg	SS-34	12/12	-	125	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.51	0.68	mg/kg	SS-35	12/12	-	0.68	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.11	5.6	mg/kg	SS-34	11/12	0.09-0.09	5.6	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	818	3390	mg/kg	SS-34	12/12	-	3390	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	11.7	23	mg/kg	SS27	12/12	-	23	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	4.7	8.3	mg/kg	SS-33	12/12	-	8.3	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	46.9	1340	mg/kg	SS-34	9/12	49-81.8	1340	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	7580	16100	mg/kg	SS-34, SS-37	12/12	-	16100	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	18.1	145	mg/kg	SS-34	12/12	-	145	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	925	3700	mg/kg	SS-37	12/12	-	3700	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	113	366	mg/kg	SS-35	12/12	-	366	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	1.1	2.4	mg/kg	SS-36	4/12	0.19-1.3	2.4	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	11.4	30.9	mg/kg	SS-34	12/12	-	30.9	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	525	2820	mg/kg	SS-33	12/12	-	2820	NA	NA		NA		NO	Essential Nutrient
	7782-49-2	Selenium	0.76	1	mg/kg	SS-34	3/12	0.66-0.72	1	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.47	1.9	mg/kg	SS-36	11/12	0.23-0.23	1.9	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	407	407	mg/kg	SS31	1/12	107-255	407	NA	NA		NA		NO	Essential Nutrient
	7440-28-0	Thallium	1.2	1.6	mg/kg	SS31	2/12	1.2-1.3	1.6	NA	NA		5.4	CT RSR	YES	NBA
	7440-62-2	Vanadium	19.8	51.6	mg/kg	SS-37	12/12	-	51.6	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	67.7	1460	mg/kg	SS-34	12/12	-	1460	NA	2350	n	20000	CT RSR	NO	BSL

TABLE A-2.1e3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

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

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.
- 1,2,4-Trichlorobenzene value used for 1,2,3-Trichlorobenzene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2e3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.002	0.011	mg/kg	SB32	5/18	0.011-0.9	0.011	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.012	0.042	mg/kg	SS31	2/6	0.19-0.21	0.042	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.045	0.045	mg/kg	SS31	1/6	0.19-0.38	0.045	NA	782	n	NA	CT RSR	NO	BSL
	319-86-8	delta-BHC	0.0039	0.0039	mg/kg	SS-36	1/18	0.0018-0.0099	0.0039	NA	0.27	c	0.097	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.033	11	mg/kg	SS-36	14/18	0.19-0.38	11	NA	34.7	c	44	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.019	0.038	mg/kg	SS31	4/16	0.2-0.77	0.038	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.064	0.064	mg/kg	SB165	1/6	0.2-0.39	0.064	NA	3060	n	NA	CT RSR	NO	BSL
	56-23-5	Carbon tetrachloride	0.11	0.11	mg/kg	SB163	1/18	0.001-0.45	0.11	NA	0.248	c	4.7	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0022	0.16	mg/kg	SS-34	13/17	0.0018-0.0022	0.16	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0011	0.11	mg/kg	SS-34	10/15	0.0018-0.004	0.11	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.08	1.3	mg/kg	SS-34	12/16	2.8-3.1	1.3	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0018	0.014	mg/kg	SS-36	4/18	0.0037-0.038	0.014	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0017	0.06	mg/kg	SS-36	8/14	0.0038-0.0042	0.06	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0027	0.085	mg/kg	SS-36	10/17	0.0035-0.039	0.085	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.018	0.62	mg/kg	SS-37	7/16	0.19-0.41	0.62	NA	7.82	n	270	CT RSR	NO	BSL
	540-59-0	1,2-Dichloroethene (total)	0.012	0.012	mg/kg	SS-34	1/10	0.011-0.012	0.012	NA	70.4	n	NA	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.00037	0.0089	mg/kg	SS-36	8/17	0.0037-0.019	0.0089	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.024	0.024	mg/kg	SS27	1/16	0.19-0.77	0.024	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.074	0.23	mg/kg	SS-37	2/16	0.19-0.77	0.23	NA	NA		1000	CT RSR	YES	NBA
	33213-65-9	Endosulfan II	0.0043	0.0043	mg/kg	SS31	1/18	0.0035-0.019	0.0043	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0014	0.0094	mg/kg	SS-36	4/18	0.0035-0.039	0.0094	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0029	0.0029	mg/kg	SS31	1/16	0.0035-0.019	0.0029	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.002	0.0023	mg/kg	SB164	2/17	0.0037-0.039	0.0023	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.00088	0.011	mg/kg	SS31, SS-35	8/18	0.0037-0.019	0.011	NA	1.83	n	20	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.00071	0.0039	mg/kg	SS-36	2/18	0.0018-0.0099	0.0039	NA	0.108	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0008	0.046	mg/kg	SS-34	10/17	0.0018-0.004	0.046	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0053	0.0053	mg/kg	SS-37	1/16	0.019-0.2	0.0053	NA	30.6	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.072	0.096	mg/kg	SB165	3/4	0.42-0.42	0.096	NA	7820	n	NA	CT RSR	NO	BSL
	1634-04-4	MTBE	0.004	0.007	mg/kg	SB33	4/8	0.34-0.45	0.007	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.023	0.9	mg/kg	SS-37	6/16	0.19-0.41	0.9	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.034	0.13	mg/kg	SS-37	10/17	0.35-0.77	0.13	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.029	1.4	mg/kg	SS-37	13/17	0.37-0.41	1.4	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.061	3.4	mg/kg	SS-37	16/17	0.37-0.37	3.4	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.046	2.6	mg/kg	SS-37	16/17	0.37-0.37	2.6	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.066	2.8	mg/kg	SS-37	16/17	0.37-0.37	2.8	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.035	1.4	mg/kg	SS-37	16/17	0.37-0.37	1.4	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.048	1.9	mg/kg	SS-37	16/17	0.37-0.37	1.9	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.025	1.1	mg/kg	SS-37	11/17	0.2-0.41	1.1	NA	NA		31	CT RSR	YES	NBA

TABLE A-2.2e3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	218-01-9	Chrysene	0.047	3.4	mg/kg	SS-37	17/18	0.37-0.37	3.4	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.035	0.66	mg/kg	SS-37	11/17	0.2-0.41	0.66	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.054	9.3	mg/kg	SS-37	18/18	-	9.3	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.054	1	mg/kg	SS146, SS-37	4/16	0.19-0.41	1	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.039	1.7	mg/kg	SS-37	16/17	0.37-0.37	1.7	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.046	0.086	mg/kg	SS-37	4/16	0.19-0.41	0.086	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.001	0.16	mg/kg	SS-34, SS-37	6/18	0.006-0.41	0.16	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.078	8.2	mg/kg	SS-37	16/17	0.37-0.37	8.2	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.061	8.9	mg/kg	SS-37	18/18	-	8.9	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.044	0.044	mg/kg	SS-35	1/18	0.037-0.19	0.044	NA	0.112	n	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	0.002	mg/kg	SS-33, SS-34	4/18	0.001-0.45	0.002	NA	497	n	500	CT RSR	NO	BSL
	87-61-6	1,2,3-Trichlorobenzene	0.001	0.001	mg/kg	SS27	1/8	0.001-0.45	0.001	NA	4.89	n	NA	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.001	0.001	mg/kg	SS31	1/18	0.001-0.77	0.001	NA	6.19	n	680	CT RSR	NO	BSL
	1330-20-7	Xylene (total)	0.001	0.002	mg/kg	SS-37	3/10	0.011-0.012	0.002	NA	62.7	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	3760	12000	mg/kg	SS-36	18/18	-	12000	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	0.87	7.6	mg/kg	SB32	2/15	0.46-1.1	7.6	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.6	8.1	mg/kg	SB32	18/18	-	8.1	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	35.7	278	mg/kg	SB32	18/18	-	278	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.4	0.8	mg/kg	SB32	18/18	-	0.8	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.11	5.6	mg/kg	SS-34	17/18	0.09-0.09	5.6	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	818	8480	mg/kg	SB166	18/18	-	8480	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	8.8	125	mg/kg	SB32	18/18	-	125	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	4	8.3	mg/kg	SS-33	18/18	-	8.3	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	46.9	1340	mg/kg	SS-34	15/18	49-81.8	1340	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	4940	17200	mg/kg	SB33	18/18	-	17200	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	18.1	1410	mg/kg	SB32	18/18	-	1410	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	826	3700	mg/kg	SS-37	18/18	-	3700	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	82.6	432	mg/kg	SB165	18/18	-	432	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.11	2.4	mg/kg	SS-36	10/18	0.19-1.3	2.4	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	11.4	38.6	mg/kg	SB164	18/18	-	38.6	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	525	2820	mg/kg	SS-33	18/18	-	2820	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.76	1.4	mg/kg	SB33	5/18	0.66-4.4	1.4	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.24	7.2	mg/kg	SB164	15/18	0.2128-0.2679	7.2	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	50.9	711	mg/kg	SB32	7/18	107-255	711	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	1.2	1.6	mg/kg	SS31	2/18	1.2-3.1	1.6	NA	NA		5.4	CT RSR	YES	NBA
	7440-62-2	Vanadium	15.7	51.6	mg/kg	SS-37	18/18	-	51.6	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	67.7	1460	mg/kg	SS-34	18/18	-	1460	NA	2350	n	20000	CT RSR	NO	BSL

TABLE A-2.2e3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

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

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.
- 1,2,4-Trichlorobenzene value used for 1,2,3-Trichlorobenzene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1f
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area F Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.002	0.007	mg/kg	SS08, SS17	4/22	0.01-0.041	0.007	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.016	0.09	mg/kg	SS14	4/4	-	0.09	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.029	0.18	mg/kg	SS14	2/4	0.35-0.4	0.18	NA	782	n	NA	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.087	0.087	mg/kg	SS14	1/4	0.35-0.43	0.087	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.044	3.9	mg/kg	SS-08	18/22	0.35-0.4	3.9	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.002	0.003	mg/kg	SS17	3/22	0.006-0.014	0.003	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.018	0.32	mg/kg	SS14	4/22	0.35-0.85	0.32	NA	256	c	1000	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0032	0.017	mg/kg	SS14	2/22	0.0018-0.0025	0.017	NA	1.62	c	NA	CT RSR	NO	BSL
	59-50-7	4-Chloro-3-methylphenol	0.043	0.043	mg/kg	SS-08	1/22	0.35-0.85	0.043	NA	611	n	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.1	0.81	mg/kg	SS-06	15/22	0.06-0.6	0.81	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.00043	0.35	mg/kg	SS14	6/21	0.0035-0.0048	0.35	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0012	1	mg/kg	SS14	8/19	0.0035-0.021	1	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.00072	1.3	mg/kg	SS14	20/22	0.0036-0.0043	1.3	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.01	0.53	mg/kg	SS14	10/22	0.35-0.48	0.53	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0012	0.044	mg/kg	SS14	5/14	0.0035-0.019	0.044	NA	0.0303	c	0.038	CT RSR	YES	ASL
	84-74-2	Di-n-butylphthalate	0.025	0.15	mg/kg	SS14	8/22	0.35-0.85	0.15	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.098	1.2	mg/kg	SS-02	3/22	0.35-0.85	1.2	NA	NA		1000	CT RSR	YES	NBA
	1031-07-8	Endosulfan sulfate	0.0012	0.0031	mg/kg	SS-02	4/20	0.0035-0.02	0.0031	NA	36.7	n	410	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0021	0.0067	mg/kg	SS-08	5/18	0.0036-0.019	0.0067	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.00079	0.0092	mg/kg	SS-02	3/22	0.0035-0.02	0.0092	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00086	0.0089	mg/kg	SS14	5/19	0.0018-0.01	0.0089	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0021	0.054	mg/kg	SS-06	9/21	0.018-0.1	0.054	NA	30.6	n	340	CT RSR	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	0.004	0.004	mg/kg	SS-07	1/22	0.001-0.014	0.004	NA	532	n	500	CT RSR	NO	BSL
	106-44-5	4-Methylphenol	0.049	0.049	mg/kg	SS14	1/22	0.35-0.85	0.049	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.006	0.008	mg/kg	SS01, SS17	4/4	-	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.018	0.6	mg/kg	SS14	10/22	0.36-0.48	0.6	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.046	0.37	mg/kg	SS14	9/22	0.35-0.8	0.37	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.057	1.7	mg/kg	SS14	15/22	0.36-0.41	1.7	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.041	4.3	mg/kg	SS14	20/22	0.36-0.41	4.3	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.065	4.1	mg/kg	SS14	18/22	0.36-0.41	4.1	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.08	5.1	mg/kg	SS14	21/22	0.36-0.36	5.1	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.058	3	mg/kg	SS14	19/22	0.36-0.41	3	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.07	4.4	mg/kg	SS-05	21/22	0.36-0.36	4.4	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.05	0.92	mg/kg	SS14	15/22	0.36-0.41	0.92	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.054	4.7	mg/kg	SS14	21/22	0.36-0.36	4.7	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.062	1.4	mg/kg	SS14	16/22	0.36-0.41	1.4	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.088	11	mg/kg	SS14	21/22	0.36-0.36	11	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.028	0.63	mg/kg	SS14	13/22	0.36-0.48	0.63	NA	229	n	1000	CT RSR	NO	BSL

TABLE A-2.1f
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area F Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	193-39-5	Indeno(1,2,3-cd)pyrene	0.055	2.9	mg/kg	SS14	19/22	0.36-0.41	2.9	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.051	0.27	mg/kg	SS14	7/22	0.35-0.78	0.27	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.044	0.33	mg/kg	SS-05, SS14	6/22	0.001-0.78	0.33	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.047	8.3	mg/kg	SS14	21/22	0.36-0.36	8.3	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.094	11	mg/kg	SS14	21/22	0.36-0.36	11	NA	172	n	1000	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.002	0.004	mg/kg	SS14	2/22	0.001-0.013	0.004	NA	0.554	c	12	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	0.004	mg/kg	SS-07	6/22	0.001-0.013	0.004	NA	497	n	500	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.002	0.002	mg/kg	SS-02	1/22	0.001-0.013	0.002	NA	2.82	c	56	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	3200	16400	mg/kg	SS17	23/23	-	16400	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	1.2	2.2	mg/kg	SS14	2/23	0.46-1.5	2.2	NA	3.13	n	27	CT RSR	NO	BSL
	7440-38-2	Arsenic	1.2	15.5	mg/kg	SS-06	22/23	0.93-0.93	15.5	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	24.4	156	mg/kg	SS-02	23/23	-	156	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.29	1.5	mg/kg	SS-02	23/23	-	1.5	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.11	10.5	mg/kg	SS14	20/23	0.09-0.1	10.5	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	588	6540	mg/kg	SS-02	23/23	-	6540	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	4.3	28.8	mg/kg	SS14	23/23	-	28.8	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.7	10.1	mg/kg	SS-02	23/23	-	10.1	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	11.9	13700	mg/kg	SS14	21/23	33.9-36	13700	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6130	20300	mg/kg	SS-05	23/23	-	20300	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	9.1	758	mg/kg	SS14	23/23	-	758	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	792	3490	mg/kg	SS17	23/23	-	3490	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	94.2	438	mg/kg	SS-05	23/23	-	438	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.08	1.2	mg/kg	SS-09	11/23	0.07-1.5	1.2	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	11.3	115	mg/kg	SS-02	19/23	4.5-16.1	115	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	407	1780	mg/kg	SS-01	23/23	-	1780	NA	NA		NA		NO	Essential Nutrient
	7782-49-2	Selenium	1.2	1.6	mg/kg	SS01	2/23	0.65-0.8385	1.6	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.24	4.8	mg/kg	SS-06	17/23	0.2516-0.96	4.8	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	370	6900	mg/kg	SS14	5/23	142-261	6900	NA	NA		NA		NO	Essential Nutrient
	7440-28-0	Thallium	1.5	1.7	mg/kg	SS01	2/23	1.2-1.5043	1.7	NA	NA		5.4	CT RSR	YES	NBA
	7440-62-2	Vanadium	9.7	218	mg/kg	SS-02	23/23	-	218	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	23.7	8440	mg/kg	SS14	23/23	-	8440	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2f
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area F Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.002	0.66	mg/kg	SB02	7/25	0.01-0.041	0.66	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.016	0.09	mg/kg	SS14	4/6	0.38-2.3	0.09	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.029	0.18	mg/kg	SS14	2/6	0.35-2.3	0.18	NA	782	n	NA	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.087	0.087	mg/kg	SS14	1/5	0.35-2.3	0.087	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.044	3.9	mg/kg	SS-08	23/28	0.35-2.3	3.9	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.002	0.005	mg/kg	MW6D	4/25	0.006-0.45	0.005	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.018	0.32	mg/kg	SS14	4/24	0.35-2.3	0.32	NA	256	c	1000	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0027	0.019	mg/kg	SB11	2/26	0.0018-0.01	0.019	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0032	0.022	mg/kg	SB11	4/27	0.0018-0.0025	0.022	NA	1.62	c	NA	CT RSR	NO	BSL
	59-50-7	4-Chloro-3-methylphenol	0.043	0.043	mg/kg	SS-08	1/24	0.35-2.3	0.043	NA	611	n	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.1	4.6	mg/kg	SB11	16/26	0.000567-0.6	4.6	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.00043	0.35	mg/kg	SS14	7/27	0.0035-0.0049	0.35	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0012	1	mg/kg	SS14	11/25	0.0035-0.021	1	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.00072	1.3	mg/kg	SS14	23/27	0.0036-0.0049	1.3	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.01	0.53	mg/kg	SS14	11/25	0.35-2.3	0.53	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0012	0.044	mg/kg	SS14	5/20	0.0035-0.019	0.044	NA	0.0303	c	0.038	CT RSR	YES	ASL
	84-66-2	Diethyl phthalate	0.59	0.59	mg/kg	SB02	1/24	0.35-0.85	0.59	NA	4890	n	1000	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.025	0.15	mg/kg	SS14	9/25	0.35-2.3	0.15	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.098	1.2	mg/kg	SS-02	3/24	0.35-2.3	1.2	NA	NA		1000	CT RSR	YES	NBA
	1031-07-8	Endosulfan sulfate	0.0012	0.0031	mg/kg	SS-02	4/26	0.0035-0.02	0.0031	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.011	0.011	mg/kg	SB11	1/25	0.0035-0.021	0.011	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0021	0.0067	mg/kg	SS-08	5/24	0.0036-0.019	0.0067	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.00079	0.0092	mg/kg	SS-02	4/28	0.0035-0.02	0.0092	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00086	0.0089	mg/kg	SS14	7/25	0.0018-0.01	0.0089	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0021	0.054	mg/kg	SS-06	10/27	0.018-0.1	0.054	NA	30.6	n	340	CT RSR	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	0.004	0.004	mg/kg	SS-07	1/25	0.001-0.09	0.004	NA	532	n	500	CT RSR	NO	BSL
	106-44-5	4-Methylphenol	0.049	0.049	mg/kg	SS14	1/24	0.35-2.3	0.049	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.006	0.008	mg/kg	SS01, SS17	4/7	0.006-0.09	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.018	0.6	mg/kg	SS14	12/25	0.36-2.3	0.6	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.028	0.37	mg/kg	SS14	11/25	0.35-2.3	0.37	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.048	1.7	mg/kg	SS14	18/26	0.36-2.3	1.7	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.041	4.3	mg/kg	SS14	25/27	0.36-0.41	4.3	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.043	4.1	mg/kg	SS14	23/27	0.36-0.41	4.1	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.054	5.1	mg/kg	SS14	26/27	0.36-0.36	5.1	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.058	3	mg/kg	SS14	22/26	0.36-2.3	3	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.049	4.4	mg/kg	SS-05	25/27	0.36-0.38	4.4	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.05	0.92	mg/kg	SS14	16/24	0.36-0.41	0.92	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.054	4.7	mg/kg	SS14	26/27	0.36-0.36	4.7	NA	14.8	c	84	CT RSR	NO	BSL

TABLE A-2.2f
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area F Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	53-70-3	Dibenz(a,h)anthracene	0.054	1.4	mg/kg	SS14	18/25	0.36-2.3	1.4	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.053	11	mg/kg	SS14	27/28	0.36-0.36	11	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.028	0.63	mg/kg	SS14	14/25	0.36-2.3	0.63	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.055	2.9	mg/kg	SS14	22/25	0.36-0.41	2.9	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.051	0.27	mg/kg	SS14	7/24	0.35-2.3	0.27	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.037	0.33	mg/kg	SS-05, SS14	9/26	0.001-2.3	0.33	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.047	8.3	mg/kg	SS14	27/28	0.36-0.36	8.3	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.062	11	mg/kg	SS14	27/28	0.36-0.36	11	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11096-82-5	Aroclor-1260	0.0039	0.0039	mg/kg	MW6D	1/28	0.035-0.2	0.0039	NA	0.221	c	1	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.002	0.004	mg/kg	SS14	2/25	0.001-0.09	0.004	NA	0.554	c	12	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	0.004	mg/kg	SS-07	6/25	0.001-0.09	0.004	NA	497	n	500	CT RSR	NO	BSL
	87-61-6	1,2,3-Trichlorobenzene	0.053	0.096	mg/kg	SB11	2/6	0.001-0.001	0.096	NA	4.89	n	NA	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.044	0.044	mg/kg	SB02	1/25	0.001-0.85	0.044	NA	6.19	n	680	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.002	0.002	mg/kg	SS-02	1/25	0.001-0.09	0.002	NA	2.82	c	56	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	3200	16400	mg/kg	SS17	29/29	-	16400	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	1.2	2.9	mg/kg	SB11	3/28	0.46-1.5	2.9	NA	3.13	n	27	CT RSR	NO	BSL
	7440-38-2	Arsenic	1.2	15.5	mg/kg	SS-06	28/29	0.93-0.93	15.5	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	18.7	666	mg/kg	SB11	29/29	-	666	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.16	1.5	mg/kg	SS-02	27/29	0.3788-2.7	1.5	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.11	14.6	mg/kg	SB11	25/29	0.09-4	14.6	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	588	8190	mg/kg	SB11	28/28	-	8190	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	4.3	507	mg/kg	SB11	29/29	-	507	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.7	10.1	mg/kg	SS-02	29/29	-	10.1	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	11.9	14500	mg/kg	SB11	27/29	33.9-36	14500	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6130	37800	mg/kg	SB11	28/28	-	37800	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	7.4	787	mg/kg	SB11	29/29	-	787	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	792	3700	mg/kg	SB02	28/28	-	3700	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	94.2	627	mg/kg	SB11	28/28	-	627	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.051	1.2	mg/kg	SS-09	15/29	0.0524-1.5	1.2	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	5.2	140	mg/kg	SB11	25/29	4.5-16.1	140	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	407	3130	mg/kg	SB02	28/28	-	3130	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.91	1.8	mg/kg	SB02	5/29	0.65-21.2	1.8	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.24	4.8	mg/kg	SS-06	19/29	0.1887-4	4.8	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	370	6900	mg/kg	SS14	10/28	142-261	6900	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	1.5	2.6	mg/kg	SB11	3/29	1.2-29.2	2.6	NA	NA		5.4	CT RSR	YES	NBA
	7440-62-2	Vanadium	9.7	218	mg/kg	SS-02	29/29	-	218	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	23.7	8440	mg/kg	SS14	29/29	-	8440	NA	2350	n	20000	CT RSR	YES	ASL

TABLE A-2.2f
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area F Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

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

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.
- 1,2,4-Trichlorobenzene value used for 1,2,3-Trichlorobenzene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1g
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area G Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.003	0.011	mg/kg	SB40	2/3	0.014-0.014	0.011	NA	6130	n	500	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0023	0.0023	mg/kg	MW5	1/4	0.002-0.0024	0.0023	NA	0.0286	c	0.036	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.13	0.13	mg/kg	MW5	1/4	0.39-1.4	0.13	NA	782	n	NA	CT RSR	NO	BSL
	71-43-2	Benzene	0.001	0.001	mg/kg	MW5	1/3	0.001-0.006	0.001	NA	1.08	c	21	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.049	0.13	mg/kg	MW5	2/4	0.78-1.4	0.13	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.002	0.002	mg/kg	SS23	1/3	0.011-0.014	0.002	NA	2780	n	500	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.001	0.001	mg/kg	MW5	1/3	0.001-0.006	0.001	NA	82.1	n	500	CT RSR	NO	BSL
	67-66-3	Chloroform	0.017	0.017	mg/kg	SB39	1/4	0.001-0.007	0.017	NA	0.295	c	100	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.000092	0.14	mg/kg	SS23	2/4	0.000102-0.501	0.14	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0045	0.0045	mg/kg	SS23	1/4	0.0034-0.0039	0.0045	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0038	0.015	mg/kg	SS23	3/4	0.0034-0.0034	0.015	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.043	0.043	mg/kg	SS23	1/3	0.0034-0.0039	0.043	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.016	0.12	mg/kg	SB40	3/4	1.4-1.4	0.12	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0035	0.0035	mg/kg	SS23	1/4	0.0034-0.0039	0.0035	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.034	0.048	mg/kg	MW5	2/4	0.39-1.4	0.048	NA	611	n	1000	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0039	0.0039	mg/kg	SB40	1/4	0.0034-0.0039	0.0039	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.002	0.002	mg/kg	SB40	1/2	0.002-0.002	0.002	NA	0.0533	c	0.067	CT RSR	NO	BSL
	591-78-6	2-Hexanone	0.011	0.011	mg/kg	SB40	1/3	0.001-0.014	0.011	NA	20.9	n	NA	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.02	0.038	mg/kg	SB40	2/4	0.018-0.02	0.038	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.005	0.005	mg/kg	SS23	1/3	0.006-0.007	0.005	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.033	0.064	mg/kg	SB40	2/4	0.74-1.4	0.064	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.012	0.21	mg/kg	SB40	3/4	1.4-1.4	0.21	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.082	0.22	mg/kg	SB40	3/4	1.4-1.4	0.22	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.48	0.81	mg/kg	SS23	4/4	-	0.81	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.39	0.92	mg/kg	SS23	4/4	-	0.92	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.54	0.93	mg/kg	SB39	4/4	-	0.93	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.23	0.74	mg/kg	SB39	4/4	-	0.74	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.41	0.91	mg/kg	SS23	4/4	-	0.91	NA	1.48	c	8.4	CT RSR	NO	BSL
	86-74-8	Carbazole	0.059	0.13	mg/kg	SB40	3/4	1.4-1.4	0.13	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.77	1.3	mg/kg	SB40	4/4	-	1.3	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.13	0.25	mg/kg	SB39	4/4	-	0.25	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	1.1	1.9	mg/kg	SB39	4/4	-	1.9	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.025	0.097	mg/kg	SB40	3/4	1.4-1.4	0.097	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.25	0.57	mg/kg	SB39	4/4	-	0.57	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.034	0.11	mg/kg	SB40	3/4	1.4-1.4	0.11	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.088	0.78	mg/kg	SB40	2/4	0.001-1.4	0.78	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.41	1.4	mg/kg	SB40	4/4	-	1.4	NA	1720	n	1000	CT RSR	NO	BSL

TABLE A-2.1g
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area G Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	129-00-0	Pyrene	0.75	1.8	mg/kg	SB39	4/4	-	1.8	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	12672-29-6	Aroclor-1248	0.0037	0.0037	mg/kg	SB40	1/4	0.0036-0.039	0.0037	NA	0.221	c	1	CT RSR	NO	BSL
	11097-69-1	Aroclor-1254	0.0048	0.0048	mg/kg	SB39	1/4	0.0039-0.039	0.0048	NA	0.112	n	1	CT RSR	NO	BSL
	11096-82-5	Aroclor-1260	0.0044	0.0078	mg/kg	SB39	2/4	0.0039-0.039	0.0078	NA	0.221	c	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.006	0.006	mg/kg	MW5	1/3	0.001-0.006	0.006	NA	497	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	5900	10800	mg/kg	SS23	4/4	-	10800	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	40.7	40.7	mg/kg	SB40	1/2	0.6852-0.6852	40.7	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	3	20.7	mg/kg	SB40	4/4	-	20.7	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	41.4	1080	mg/kg	SB40	4/4	-	1080	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.52	0.52	mg/kg	SS23	1/4	2.5-2.8	0.52	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	4	22.6	mg/kg	SB40	2/4	0.2284-25.6	22.6	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	1050	1050	mg/kg	SS23	1/1	-	1050	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	7.7	66.3	mg/kg	SB40	4/4	-	66.3	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	6	13.7	mg/kg	SB39	4/4	-	13.7	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	26.3	25900	mg/kg	SB40	4/4	-	25900	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	13400	13400	mg/kg	SS23	1/1	-	13400	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	21.3	2960	mg/kg	SB40	4/4	-	2960	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	2550	2550	mg/kg	SS23	1/1	-	2550	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	214	214	mg/kg	SS23	1/1	-	214	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.1	1.2	mg/kg	SB39, SB40	4/4	-	1.2	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	11.2	430	mg/kg	SB40	4/4	-	430	NA	155	n	1400	CT RSR	YES	ASL
	7440-09-7	Potassium	1180	1180	mg/kg	SS23	1/1	-	1180	NA	NA		NA		NO	Essential Nutrient
	7440-22-4	Silver	1.4	35.7	mg/kg	SB40	2/4	0.2284-4.4	35.7	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	350	350	mg/kg	SS23	1/1	-	350	NA	NA		NA		NO	Essential Nutrient
	7440-28-0	Thallium	1.6	1.6	mg/kg	SS23	1/4	27.8-31.3	1.6	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	2.3	947	mg/kg	SB40	2/3	36.7-36.7	947	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	20	54.3	mg/kg	SB39	4/4	-	54.3	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	43.9	13700	mg/kg	SB40	4/4	-	13700	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endrin value used for Endrin aldehyde.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2g
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area G Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.003	0.38	mg/kg	SB18	3/7	0.012-0.87	0.38	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.033	0.043	mg/kg	SB18	2/8	0.18-1.5	0.043	NA	782	n	NA	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0023	0.0023	mg/kg	MW5	1/8	0.0018-0.0024	0.0023	NA	0.0286	c	0.036	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.13	0.13	mg/kg	MW5	1/8	0.18-1.5	0.13	NA	782	n	NA	CT RSR	NO	BSL
	71-43-2	Benzene	0.001	0.001	mg/kg	MW5	1/7	0.001-0.44	0.001	NA	1.08	c	21	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.049	0.53	mg/kg	SB18	3/8	0.18-1.5	0.53	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.002	0.002	mg/kg	SS23	1/7	0.011-0.87	0.002	NA	2780	n	500	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.001	0.01	mg/kg	SB39	2/7	0.001-0.44	0.01	NA	82.1	n	500	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0011	0.0011	mg/kg	SB119	1/4	0.0018-0.002	0.0011	NA	1.62	c	NA	CT RSR	NO	BSL
	67-66-3	Chloroform	0.017	0.12	mg/kg	SB119	2/8	0.001-0.3	0.12	NA	0.295	c	100	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.000092	0.17	mg/kg	SB18	3/8	0.000102-3	0.17	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0028	0.0045	mg/kg	SS23	2/7	0.0034-0.0039	0.0045	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0038	0.015	mg/kg	SS23	3/8	0.0034-0.004	0.015	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.043	0.043	mg/kg	SS23	1/6	0.0034-0.004	0.043	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.016	0.12	mg/kg	SB40	5/8	0.39-1.5	0.12	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0035	0.0035	mg/kg	SS23	1/8	0.0034-0.004	0.0035	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.034	0.53	mg/kg	SB119	4/8	0.18-1.5	0.53	NA	611	n	1000	CT RSR	NO	BSL
	959-98-8	Endosulfan I	0.0015	0.0021	mg/kg	SB119	2/8	0.0018-0.002	0.0021	NA	36.7	n	410	CT RSR	NO	BSL
	33213-65-9	Endosulfan II	0.0029	0.0029	mg/kg	SB120	1/8	0.0034-0.004	0.0029	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0043	0.0097	mg/kg	SB120	2/6	0.0038-0.0039	0.0097	NA	36.7	n	410	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0038	0.007	mg/kg	SB120	3/8	0.0034-0.0039	0.007	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.008	0.03	mg/kg	SB120	2/8	0.0034-0.0039	0.03	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.002	0.0057	mg/kg	SB39	2/6	0.0018-0.0021	0.0057	NA	0.0533	c	0.067	CT RSR	NO	BSL
	591-78-6	2-Hexanone	0.011	0.011	mg/kg	SB40	1/6	0.001-0.87	0.011	NA	20.9	n	NA	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.011	0.038	mg/kg	SB40	3/8	0.018-0.021	0.038	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.005	0.007	mg/kg	SB18	2/7	0.006-0.44	0.007	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.033	0.097	mg/kg	SB120	3/8	0.2-1.5	0.097	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.012	0.21	mg/kg	SB40	5/8	0.39-1.5	0.21	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.043	0.22	mg/kg	SB40	6/8	1.4-1.5	0.22	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.21	0.81	mg/kg	SS23	8/8	-	0.81	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.12	0.92	mg/kg	SS23	8/8	-	0.92	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.2	1.1	mg/kg	SB120	7/8	1.5-1.5	1.1	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.054	0.74	mg/kg	SB39	8/8	-	0.74	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.12	0.91	mg/kg	SS23	8/8	-	0.91	NA	1.48	c	8.4	CT RSR	NO	BSL
	86-74-8	Carbazole	0.024	0.13	mg/kg	SB40	5/8	0.39-1.5	0.13	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.27	1.3	mg/kg	SB40	8/8	-	1.3	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.028	0.25	mg/kg	SB39	6/8	0.39-1.5	0.25	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.51	2.3	mg/kg	SB120	8/8	-	2.3	NA	229	n	1000	CT RSR	NO	BSL

TABLE A-2.2g
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area G Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	86-73-7	Fluorene	0.025	0.097	mg/kg	SB40	4/8	0.2-1.5	0.097	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.061	0.57	mg/kg	SB39	8/8	-	0.57	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.03	0.42	mg/kg	SB39	7/8	1.4-1.4	0.42	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.038	0.78	mg/kg	SB40	4/9	0.001-1.5	0.78	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.25	1.5	mg/kg	SB120	8/8	-	1.5	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.28	1.8	mg/kg	SB39	8/8	-	1.8	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	12672-29-6	Aroclor-1248	0.0037	0.0037	mg/kg	SB40	1/8	0.0036-0.04	0.0037	NA	0.221	c	1	CT RSR	NO	BSL
	11097-69-1	Aroclor-1254	0.0048	0.0048	mg/kg	SB39	1/8	0.0039-0.04	0.0048	NA	0.112	n	1	CT RSR	NO	BSL
	11096-82-5	Aroclor-1260	0.0044	0.0078	mg/kg	SB39	2/8	0.0039-0.04	0.0078	NA	0.221	c	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.006	0.073	mg/kg	SB18	2/6	0.001-0.44	0.073	NA	497	n	500	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.075	0.075	mg/kg	SB18	1/5	0.001-0.44	0.075	NA	6.19	n	680	CT RSR	NO	BSL
	75-69-4	Trichlorofluoromethane	0.17	0.17	mg/kg	SB18	1/7	0.001-0.44	0.17	NA	78.7	n	500	CT RSR	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	0.098	0.098	mg/kg	SB18	1/3	0.001-0.006	0.098	NA	6.22	n	500	CT RSR	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	0.26	0.26	mg/kg	SB18	1/3	0.001-0.006	0.26	NA	78.2	n	500	CT RSR	NO	BSL
	106-42-3	m&p-Xylene	0.15	0.15	mg/kg	#N/A	1/4	0.002-0.44	0.15	NA	343	n	NA	CT RSR	NO	BSL
	95-47-6	o-Xylene	0.045	0.045	mg/kg	SB18	1/4	0.001-0.44	0.045	NA	383	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	2500	10800	mg/kg	SS23	8/8	-	10800	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	4.2	40.7	mg/kg	SB40	2/5	0.6852-6.5	40.7	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	3	20.7	mg/kg	SB40	8/8	-	20.7	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	41.4	1080	mg/kg	SB40	8/8	-	1080	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.28	0.52	mg/kg	SS23	4/8	2.3-2.8	0.52	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	3.5	60.3	mg/kg	SB18	6/8	0.2284-25.6	60.3	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	1050	3450	mg/kg	SB120	4/4	-	3450	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	6.4	66.3	mg/kg	SB40	8/8	-	66.3	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	4.2	13.7	mg/kg	SB39	8/8	-	13.7	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	26.3	25900	mg/kg	SB40	8/8	-	25900	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	6870	19500	mg/kg	SB120	4/4	-	19500	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	21.3	2960	mg/kg	SB40	8/8	-	2960	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	655	4620	mg/kg	SB120	4/4	-	4620	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	77.5	282	mg/kg	SB120	4/4	-	282	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.1	2.9	mg/kg	SB119	8/8	-	2.9	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	11.2	430	mg/kg	SB40	8/8	-	430	NA	155	n	1400	CT RSR	YES	ASL
	7440-09-7	Potassium	466	2290	mg/kg	SB120	4/4	-	2290	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.78	1.2	mg/kg	SB18	2/8	0.6852-22.8	1.2	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.24	35.7	mg/kg	SB40	5/8	0.2284-4.4	35.7	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	294	12400	mg/kg	SB18	4/4	-	12400	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	1.6	1.6	mg/kg	SS23	1/8	1.4336-31.3	1.6	NA	NA		5.4	CT RSR	YES	NBA

TABLE A-2.2g
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area G Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7440-31-5	Tin	2.3	947	mg/kg	SB40	3/4	36.7-36.7	947	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	11.9	54.3	mg/kg	SB39	8/8	-	54.3	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	43.9	22800	mg/kg	SB119	8/8	-	22800	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan I, Endosulfan II, and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1h
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area H Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.002	0.093	mg/kg	SS15	6/8	0.011-0.012	0.093	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.011	0.07	mg/kg	SS19	4/7	0.39-1.4	0.07	NA	782	n	NA	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0021	0.0021	mg/kg	SB47	1/9	0.0018-0.0039	0.0021	NA	0.0286	c	0.036	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.034	0.077	mg/kg	SS15	3/7	0.35-1.4	0.077	NA	782	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.08	0.93	mg/kg	SS15	6/9	0.67-1.4	0.93	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.038	0.041	mg/kg	SS16	2/7	0.001-0.012	0.041	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.038	0.25	mg/kg	SS15	5/9	0.35-1.4	0.25	NA	256	c	1000	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.001	0.001	mg/kg	SS15	1/7	0.001-0.012	0.001	NA	82.1	n	500	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0066	0.0066	mg/kg	SS15	1/7	0.0018-0.0022	0.0066	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0021	0.0021	mg/kg	SS10	1/6	0.0018-0.0039	0.0021	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.00054	1.8	mg/kg	SS16	9/10	0.000492-0.000492	1.8	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0017	0.025	mg/kg	SS15	4/9	0.0034-0.0042	0.025	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.00068	0.15	mg/kg	SS15	3/9	0.0035-0.018	0.15	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.03	0.84	mg/kg	SS15	3/7	0.0035-0.0042	0.84	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.04	0.15	mg/kg	SS-14	3/9	0.35-6.6	0.15	NA	7.82	n	270	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0043	0.0043	mg/kg	SS-14	1/9	0.0034-0.0075	0.0043	NA	0.0303	c	0.038	CT RSR	NO	BSL
	131-11-3	Dimethyl phthalate	0.022	0.022	mg/kg	SS10	1/9	0.35-1.5	0.022	NA	NA		1000	CT RSR	YES	NBA
	84-74-2	Di-n-butylphthalate	0.016	0.1	mg/kg	SS15	2/9	0.35-1.4	0.1	NA	611	n	1000	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0019	0.0034	mg/kg	SB46	3/9	0.0035-0.018	0.0034	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.013	0.013	mg/kg	SS15	1/7	0.0035-0.0054	0.013	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0093	0.0093	mg/kg	SS15	1/8	0.0034-0.0042	0.0093	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0029	0.04	mg/kg	SS15	2/9	0.0034-0.0042	0.04	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00058	0.00058	mg/kg	SS-14	1/9	0.0018-0.0096	0.00058	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0082	0.09	mg/kg	SS15	2/6	0.018-0.022	0.09	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.005	0.009	mg/kg	SS19	5/5	-	0.009	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.011	0.33	mg/kg	SS-14	4/9	0.35-1.4	0.33	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.011	1.4	mg/kg	SB46	9/9	-	1.4	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.025	0.96	mg/kg	SS-14	9/9	-	0.96	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.11	4	mg/kg	SS-14	9/9	-	4	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.13	4.3	mg/kg	SS15	9/9	-	4.3	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.17	5	mg/kg	SS15	9/9	-	5	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.077	3.2	mg/kg	SS15	9/9	-	3.2	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.17	4.9	mg/kg	SS15	7/9	0.71-1.4	4.9	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.02	0.79	mg/kg	SS15	7/9	0.71-1.4	0.79	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.18	5.6	mg/kg	SS15	9/9	-	5.6	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.049	1.2	mg/kg	SS15	7/9	0.7-1.4	1.2	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.27	9	mg/kg	SS15	9/9	-	9	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.042	0.35	mg/kg	SS-14	4/9	0.35-2.7	0.35	NA	229	n	1000	CT RSR	NO	BSL

TABLE A-2.1h
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area H Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	193-39-5	Indeno(1,2,3-cd)pyrene	0.089	3.8	mg/kg	SS15	9/9	-	3.8	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.021	0.021	mg/kg	SS10	1/9	0.35-1.5	0.021	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.17	0.17	mg/kg	SS-14	1/9	0.001-1.4	0.17	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.099	5.5	mg/kg	SS-14	9/9	-	5.5	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.22	9	mg/kg	SS-14	9/9	-	9	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.014	0.014	mg/kg	SB47	1/9	0.0035-0.075	0.014	NA	0.112	n	1	CT RSR	NO	BSL
	11096-82-5	Aroclor-1260	0.014	0.014	mg/kg	SB47	1/9	0.0035-0.075	0.014	NA	0.221	c	1	CT RSR	NO	BSL
	108-88-3	Toluene	0.002	0.002	mg/kg	SS15	1/7	0.001-0.012	0.002	NA	497	n	500	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.001	0.001	mg/kg	SS16	1/7	0.001-1.1	0.001	NA	6.19	n	680	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	1500	11100	mg/kg	SS16	10/10	-	11100	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	0.92	6.2	mg/kg	SS-14	9/10	8.7-8.7	6.2	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	7.9	114	mg/kg	SS-14	10/10	-	114	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.22	0.63	mg/kg	SS-14	7/10	0.209-2.6	0.63	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.38	5.4	mg/kg	SS-14	6/10	0.1952-3.9	5.4	NA	7	n	34	CT RSR	NO	BSL
	7440-70-2	Calcium	568	3720	mg/kg	SS10	8/8	-	3720	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	4.4	20.6	mg/kg	SS15	10/10	-	20.6	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	1.8	5.8	mg/kg	SS-14	10/10	-	5.8	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	7.9	1050	mg/kg	SS-14	10/10	-	1050	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	899	13800	mg/kg	SS-14	8/8	-	13800	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	6.3	181	mg/kg	SS-14	10/10	-	181	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	834	2630	mg/kg	SS15	8/8	-	2630	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	59.2	464	mg/kg	SS-14	8/8	-	464	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.027	0.16	mg/kg	SS19	6/10	0.0418-32	0.16	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	3.4	62.2	mg/kg	SS-14	10/10	-	62.2	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	298	1380	mg/kg	SS18	8/8	-	1380	NA	NA		NA		NO	Essential Nutrient
	7440-22-4	Silver	1	2.2	mg/kg	SS-14	2/10	0.1952-3.9	2.2	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	231	446	mg/kg	SS19	7/8	162-162	446	NA	NA		NA		NO	Essential Nutrient
	7440-28-0	Thallium	1.02	1.7	mg/kg	SS16	6/10	1.3-28.8	1.7	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	2.7	2.7	mg/kg	SB47	1/2	16.3-16.3	2.7	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	9.5	83.6	mg/kg	SS-14	10/10	-	83.6	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	26.8	1690	mg/kg	SS-14	10/10	-	1690	NA	2350	n	20000	CT RSR	NO	BSL

TABLE A-2.1h
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area H Soil
Exposure Medium: Surface soil 0-2 ft bgs

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

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2h
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area H Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.002	0.093	mg/kg	SS15	9/13	0.011-2.3	0.093	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.011	0.07	mg/kg	SS19	5/12	0.39-4.1	0.07	NA	782	n	NA	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0021	0.0032	mg/kg	SB45	2/14	0.0018-0.0039	0.0032	NA	0.0286	c	0.036	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.034	0.077	mg/kg	SS15	3/12	0.35-4.1	0.077	NA	782	n	NA	CT RSR	NO	BSL
	319-84-6	alpha-BHC	0.001	0.001	mg/kg	SB45	1/14	0.0018-0.0039	0.001	NA	0.0771	c	0.097	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.001	0.0018	mg/kg	SB46	2/14	0.0017-0.0039	0.0018	NA	0.27	c	0.34	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.08	0.93	mg/kg	SS15	8/14	0.67-4.1	0.93	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.038	0.041	mg/kg	SS16	2/11	0.001-0.93	0.041	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.038	0.25	mg/kg	SS15	5/14	0.35-4.1	0.25	NA	256	c	1000	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.001	0.001	mg/kg	SB45, SS15	2/11	0.001-0.93	0.001	NA	82.1	n	500	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0066	0.0066	mg/kg	SS15	1/8	0.0018-0.0027	0.0066	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0021	0.0021	mg/kg	SS10	1/7	0.0018-0.0039	0.0021	NA	1.62	c	NA	CT RSR	NO	BSL
	67-66-3	Chloroform	0.004	0.26	mg/kg	SB45	2/11	0.001-0.014	0.26	NA	0.295	c	100	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.00054	1.8	mg/kg	SS16	11/15	0.000492-0.000778	1.8	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0017	0.025	mg/kg	SS15	5/14	0.0034-0.0052	0.025	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.00068	0.15	mg/kg	SS15	6/14	0.0035-0.018	0.15	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0086	0.84	mg/kg	SS15	5/11	0.0035-0.0052	0.84	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.04	0.54	mg/kg	SB45	7/14	0.35-6.6	0.54	NA	7.82	n	270	CT RSR	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	0.15	0.15	mg/kg	SB45	1/9	0.001-0.014	0.15	NA	78.2	n	500	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.0043	0.0043	mg/kg	SS-14	1/14	0.0034-0.0075	0.0043	NA	0.0303	c	0.038	CT RSR	NO	BSL
	131-11-3	Dimethyl phthalate	0.022	0.022	mg/kg	SS10	1/14	0.35-4.1	0.022	NA	NA		1000	CT RSR	YES	NBA
	84-74-2	Di-n-butylphthalate	0.016	0.1	mg/kg	SS15	2/14	0.35-4.1	0.1	NA	611	n	1000	CT RSR	NO	BSL
	33213-65-9	Endosulfan II	0.0036	0.0036	mg/kg	SB46	1/14	0.0034-0.0075	0.0036	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0019	0.0034	mg/kg	SB46	3/13	0.0034-0.018	0.0034	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.013	0.013	mg/kg	SS15	1/10	0.0035-0.0073	0.013	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0048	0.0093	mg/kg	SS15	2/13	0.0034-0.0052	0.0093	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0029	0.04	mg/kg	SS15	3/12	0.0034-0.0052	0.04	NA	1.83	n	20	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.0042	0.0042	mg/kg	SB45	1/14	0.0017-0.0039	0.0042	NA	0.108	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00058	0.0025	mg/kg	SB47	3/12	0.0018-0.0096	0.0025	NA	0.0533	c	0.067	CT RSR	NO	BSL
	78-59-1	Isophorone	3	3	mg/kg	SB46	1/14	0.35-4.1	3	NA	511	c	640	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0082	0.19	mg/kg	SB45	3/9	0.018-0.027	0.19	NA	30.6	n	340	CT RSR	NO	BSL
	75-09-2	Methylene chloride	0.01	0.93	mg/kg	SB45	3/11	0.001-0.012	0.93	NA	10.7	c	82	CT RSR	NO	BSL
	1634-04-4	MTBE	0.005	0.009	mg/kg	SS19	5/9	0.002-0.93	0.009	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.011	0.85	mg/kg	SB45	8/14	0.35-1.4	0.85	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.011	6.2	mg/kg	SB45	13/14	0.52-0.52	6.2	NA	344	n	1000	CT RSR	NO	BSL

TABLE A-2.2h
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area H Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	120-12-7	Anthracene	0.025	5.2	mg/kg	SB45	13/14	0.52-0.52	5.2	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.028	11	mg/kg	SB45	14/14	-	11	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.028	11	mg/kg	SB45	14/14	-	11	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.032	12	mg/kg	SB45	14/14	-	12	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.077	5.7	mg/kg	SB45	13/14	0.52-0.52	5.7	NA	3.57	c	1000	CT RSR	YES	ASL
	207-08-9	Benzo(k)fluoranthene	0.026	11	mg/kg	SB45	11/14	0.71-1.4	11	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.02	1.5	mg/kg	SB45	11/14	0.52-1.4	1.5	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.054	12	mg/kg	SB45	14/14	-	12	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.049	2.7	mg/kg	SB45	11/14	0.52-1.4	2.7	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.06	25	mg/kg	SB45	14/14	-	25	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.042	0.93	mg/kg	SB45	8/14	0.35-2.7	0.93	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.025	5.7	mg/kg	SB45	14/14	-	5.7	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.021	0.34	mg/kg	SB45	4/14	0.35-4.1	0.34	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.12	0.37	mg/kg	SB45	4/15	0.001-4.1	0.37	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.044	12	mg/kg	SB45	14/14	-	12	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.063	23	mg/kg	SB45	14/14	-	23	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	53469-21-9	Aroclor-1242	0.0064	0.0064	mg/kg	SB45	1/14	0.0034-0.075	0.0064	NA	0.221	c	1	CT RSR	NO	BSL
	11097-69-1	Aroclor-1254	0.0051	0.021	mg/kg	SB47	3/14	0.0034-0.075	0.021	NA	0.112	n	1	CT RSR	NO	BSL
	11096-82-5	Aroclor-1260	0.013	0.024	mg/kg	SB45	4/14	0.0035-0.075	0.024	NA	0.221	c	1	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.001	1	mg/kg	SB45	2/11	0.001-0.014	1	NA	0.554	c	12	CT RSR	YES	ASL
	108-88-3	Toluene	0.002	0.002	mg/kg	SS15	1/11	0.001-0.93	0.002	NA	497	n	500	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.001	0.001	mg/kg	SS16	1/9	0.001-1.1	0.001	NA	6.19	n	680	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.004	21	mg/kg	SB45	3/11	0.001-0.012	21	NA	2.82	c	56	CT RSR	YES	ASL
	75-69-4	Trichlorofluoromethane	0.005	0.005	mg/kg	SB47	1/9	0.001-0.93	0.005	NA	78.7	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	1500	11100	mg/kg	SS16	15/15	-	11100	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	2.9	2.9	mg/kg	SB46	1/15	0.5-22.3	2.9	NA	3.13	n	27	CT RSR	NO	BSL
	7440-38-2	Arsenic	0.92	22.6	mg/kg	SB20	14/15	8.7-8.7	22.6	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	7.9	5200	mg/kg	SB45	15/15	-	5200	NA	1530	n	4700	CT RSR	YES	ASL
	7440-41-7	Beryllium	0.22	1.5	mg/kg	SB47	9/15	0.209-3.8	1.5	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.38	17.7	mg/kg	SB45	10/15	0.1952-4	17.7	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	568	3720	mg/kg	SS10	9/9	-	3720	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	4.4	27.2	mg/kg	SB45	15/15	-	27.2	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	1.8	10.8	mg/kg	SB47	15/15	-	10.8	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	7.9	1900	mg/kg	SB47	15/15	-	1900	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	899	13800	mg/kg	SS-14	9/9	-	13800	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	6.3	4970	mg/kg	SB45	15/15	-	4970	NA	400		400	CT RSR	YES	ASL

TABLE A-2.2h
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area H Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7439-95-4	Magnesium	834	2630	mg/kg	SS15	9/9	-	2630	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	59.2	464	mg/kg	SS-14	9/9	-	464	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.027	0.3	mg/kg	SB47	10/15	0.0418-32	0.3	NA	0.56	n	20	CT RSR	NO	BSL
	7440-02-0	Nickel	3.4	69.4	mg/kg	SB47	15/15	-	69.4	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	298	1380	mg/kg	SS18	9/9	-	1380	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-22-4	Silver	0.65	2.6	mg/kg	SB47	5/15	0.1952-4	2.6	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	231	446	mg/kg	SS19	7/9	141.6995-162	446	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	1.02	1.7	mg/kg	SS16	7/15	1.3-41.8	1.7	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	2.7	85.8	mg/kg	SB45	4/6	16.3-20.2	85.8	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	9.5	102	mg/kg	SB47	15/15	-	102	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	26.8	11400	mg/kg	SB45	15/15	-	11400	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1i
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area I Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.002	0.008	mg/kg	SS29	2/3	0.016-0.016	0.008	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.02	0.99	mg/kg	SS24	2/3	2.7-2.7	0.99	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.048	0.46	mg/kg	SS24	2/3	2.7-2.7	0.46	NA	782	n	NA	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.0017	0.002	mg/kg	SS29	2/3	0.0019-0.0019	0.002	NA	0.27	c	0.34	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.017	0.017	mg/kg	SS29	1/2	0.38-0.38	0.017	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.33	2.9	mg/kg	SS29	2/3	2.7-2.7	2.9	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.001	0.001	mg/kg	SS24	1/3	0.001-0.016	0.001	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.28	0.28	mg/kg	SS29	1/3	0.38-2.7	0.28	NA	256	c	1000	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.01	0.01	mg/kg	SS29	1/2	0.0019-0.0019	0.01	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0063	0.0063	mg/kg	SS29	1/2	0.0019-0.0019	0.0063	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.27	0.27	mg/kg	SS29	1/2	0.11-0.11	0.27	NA	156	n	1400	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0048	0.0091	mg/kg	MW4D	2/3	0.0038-0.0038	0.0091	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.061	0.061	mg/kg	SS29	1/2	0.0038-0.0038	0.061	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.008	0.46	mg/kg	MW4D	3/3	-	0.46	NA	7.82	n	270	CT RSR	NO	BSL
	84-66-2	Diethyl phthalate	0.011	0.011	mg/kg	SS29	1/3	0.38-2.7	0.011	NA	4890	n	1000	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.017	0.13	mg/kg	SS29	2/3	2.7-2.7	0.13	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.12	0.12	mg/kg	SS29	1/3	0.38-2.7	0.12	NA	NA		1000	CT RSR	YES	NBA
	33213-65-9	Endosulfan II	0.0047	0.0047	mg/kg	SS29	1/3	0.0033-0.0038	0.0047	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0052	0.0052	mg/kg	SS29	1/3	0.0033-0.0038	0.0052	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0066	0.0066	mg/kg	SS29	1/3	0.0038-0.005	0.0066	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0045	0.0045	mg/kg	SS29	1/2	0.0038-0.0038	0.0045	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0037	0.012	mg/kg	SS29	2/3	0.0033-0.0033	0.012	NA	1.83	n	20	CT RSR	NO	BSL
	78-59-1	Isophorone	0.06	0.06	mg/kg	SS24	1/3	0.38-2.7	0.06	NA	511	c	640	CT RSR	NO	BSL
	1634-04-4	MTBE	0.008	0.008	mg/kg	SS24, SS29	2/3	0.008-0.008	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.02	0.53	mg/kg	MW4D	3/3	-	0.53	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.016	0.42	mg/kg	MW4D	3/3	-	0.42	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.055	1.9	mg/kg	MW4D	3/3	-	1.9	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.49	4.4	mg/kg	MW4D	3/3	-	4.4	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.56	4.3	mg/kg	MW4D	3/3	-	4.3	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.62	7.3	mg/kg	MW4D	3/3	-	7.3	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.28	1.2	mg/kg	SS29	3/3	-	1.2	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.55	2.3	mg/kg	SS29	2/3	2.7-2.7	2.3	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.073	0.81	mg/kg	MW4D	3/3	-	0.81	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.66	4.9	mg/kg	MW4D	3/3	-	4.9	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.1	0.56	mg/kg	MW4D	3/3	-	0.56	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.83	11	mg/kg	MW4D	3/3	-	11	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.013	0.52	mg/kg	MW4D	3/3	-	0.52	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.34	1.1	mg/kg	MW4D	3/3	-	1.1	NA	0.148	c	1	CT RSR	YES	ASL

TABLE A-2.1i
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area I Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	91-57-6	2-Methylnaphthalene	0.022	0.022	mg/kg	SS29	1/3	0.38-2.7	0.022	NA	31.3	n	474	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.29	8.4	mg/kg	MW4D	3/3	-	8.4	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.74	8.3	mg/kg	MW4D	3/3	-	8.3	NA	172	n	1000	CT RSR	NO	BSL
	108-95-2	Phenol	0.18	0.18	mg/kg	SS24	1/3	0.38-2.7	0.18	NA	1830	n	1000	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	4460	9570	mg/kg	MW4D	3/3	-	9570	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.1	5.4	mg/kg	MW4D	3/3	-	5.4	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	25.5	101	mg/kg	MW4D	3/3	-	101	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.33	0.33	mg/kg	SS24, SS29	2/3	2.4-2.4	0.33	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.25	28	mg/kg	MW4D	3/3	-	28	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	2470	2700	mg/kg	SS24	2/2	-	2700	NA	NA		NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	11	16.5	mg/kg	MW4D	3/3	-	16.5	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	3.5	7.3	mg/kg	MW4D	3/3	-	7.3	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	13.5	448	mg/kg	MW4D	3/3	-	448	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	8950	9140	mg/kg	SS24	2/2	-	9140	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	56.81	239	mg/kg	SS29	3/3	-	239	NA	400		400	CT RSR	NO	BSL
	7439-95-4	Magnesium	2050	2470	mg/kg	SS24	2/2	-	2470	NA	NA		NA		NO	Essential Nutrient
	7439-96-5	Manganese	119	134	mg/kg	SS29	2/2	-	134	NA	183	n	1400	CT RSR	NO	BSL
	7439-97-6	Mercury	0.57	1.2	mg/kg	SS29	2/3	0.0539-0.0539	1.2	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	7.2	31.7	mg/kg	MW4D	3/3	-	31.7	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	972	1060	mg/kg	SS29	2/2	-	1060	NA	NA		NA		NO	Essential Nutrient
	7440-22-4	Silver	0.96	2.4	mg/kg	MW4D	2/3	0.2155-0.2155	2.4	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	336	349	mg/kg	SS29	2/2	-	349	NA	NA		NA		NO	Essential Nutrient
	7440-28-0	Thallium	1	1.5	mg/kg	SS29	2/3	26.3-26.3	1.5	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	28.6	28.6	mg/kg	MW4D	1/1	-	28.6	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	15.5	40.4	mg/kg	MW4D	3/3	-	40.4	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	41.1	1460	mg/kg	MW4D	3/3	-	1460	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2i
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area I Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.002	0.33	mg/kg	SB145	7/8	0.016-0.016	0.33	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.013	0.99	mg/kg	SS24	5/13	0.34-81	0.99	NA	782	n	NA	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0039	0.0039	mg/kg	MW4D	1/13	0.0017-0.014	0.0039	NA	0.0286	c	0.036	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.048	0.46	mg/kg	SS24	4/13	0.33-81	0.46	NA	782	n	NA	CT RSR	NO	BSL
	71-43-2	Benzene	2.1	2.1	mg/kg	SB145	1/8	0.001-0.075	2.1	NA	1.08	c	21	CT RSR	YES	ASL
	319-84-6	alpha-BHC	0.0043	0.0043	mg/kg	SB25	1/13	0.0017-0.014	0.0043	NA	0.0771	c	0.097	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.0017	0.002	mg/kg	SS29	2/13	0.0017-0.014	0.002	NA	0.27	c	0.34	CT RSR	NO	BSL
	58-89-9	gamma-BHC	0.0076	0.0076	mg/kg	SB27	1/13	0.0017-0.0023	0.0076	NA	0.516	c	20	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.017	2.2	mg/kg	SB27	3/11	0.33-0.45	2.2	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.19	2.9	mg/kg	SS29	8/13	0.19-81	2.9	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.001	0.012	mg/kg	SB26	2/8	0.001-1.2	0.012	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.28	0.28	mg/kg	SS29	1/13	0.19-81	0.28	NA	256	c	1000	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.0028	0.006	mg/kg	SB26	2/8	0.001-0.58	0.006	NA	82.1	n	500	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.00094	0.016	mg/kg	SB27	3/11	0.0017-0.0023	0.016	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0063	0.007	mg/kg	SB35	2/11	0.0017-0.014	0.007	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.000236	0.45	mg/kg	SB35	5/11	0.06-3.9	0.45	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0086	0.0086	mg/kg	SB31	1/13	0.0033-0.027	0.0086	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0048	0.04	mg/kg	SB27	4/13	0.0033-0.0046	0.04	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.027	0.061	mg/kg	SS29	3/11	0.0033-0.0046	0.061	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.008	15	mg/kg	SB27	7/13	0.19-2.8	15	NA	7.82	n	270	CT RSR	YES	ASL
	84-66-2	Diethyl phthalate	0.011	0.99	mg/kg	SB35	3/12	0.19-81	0.99	NA	4890	n	1000	CT RSR	NO	BSL
	84-74-2	Di-n-butylphthalate	0.017	0.13	mg/kg	SS29	2/13	0.19-81	0.13	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.081	0.31	mg/kg	SB34	3/13	0.19-81	0.31	NA	NA		1000	CT RSR	YES	NBA
	33213-65-9	Endosulfan II	0.0047	0.0048	mg/kg	MW4D	2/13	0.0033-0.027	0.0048	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0032	0.0052	mg/kg	SS29	2/12	0.0033-0.49	0.0052	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0066	0.0086	mg/kg	SB31	2/13	0.0033-0.027	0.0086	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0045	0.065	mg/kg	SB27	3/12	0.0033-0.0046	0.065	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0037	0.22	mg/kg	SB27	5/12	0.0033-0.0046	0.22	NA	1.83	n	20	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0042	0.0042	mg/kg	MW4D	1/12	0.0017-0.014	0.0042	NA	0.0533	c	0.067	CT RSR	NO	BSL
	78-59-1	Isophorone	0.06	0.06	mg/kg	SS24	1/13	0.19-81	0.06	NA	511	c	640	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.45	0.45	mg/kg	SB27	1/12	0.017-0.023	0.45	NA	30.6	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.13	0.13	mg/kg	SB145	1/1	-	0.13	NA	7820	n	NA	CT RSR	NO	BSL
	1634-04-4	MTBE	0.007	0.02	mg/kg	SB35	5/8	0.008-0.58	0.02	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.015	14	mg/kg	SB27	6/13	0.19-2.8	14	NA	344	n	1000	CT RSR	NO	BSL

TABLE A-2.2i
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area I Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	208-96-8	Acenaphthylene	0.011	5.1	mg/kg	SB27	9/13	0.19-0.44	5.1	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.01	43	mg/kg	SB27	10/13	0.19-0.44	43	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.013	58	mg/kg	SB27	12/12	-	58	NA	0.148	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.01	53	mg/kg	SB27	11/13	0.19-0.44	53	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.031	43	mg/kg	SB27	11/13	0.33-0.44	43	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.13	35	mg/kg	SB27	7/13	0.19-2.8	35	NA	3.57	c	1000	CT RSR	YES	ASL
	207-08-9	Benzo(k)fluoranthene	0.038	51	mg/kg	SB27	8/13	0.19-2.8	51	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.011	17	mg/kg	SB27	8/12	0.19-2.8	17	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.015	69	mg/kg	SB27	12/13	0.44-0.44	69	NA	14.8	c	84	CT RSR	YES	ASL
	53-70-3	Dibenz(a,h)anthracene	0.015	13	mg/kg	SB27	8/13	0.19-2.8	13	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.025	160	mg/kg	SB27	12/12	-	160	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.013	17	mg/kg	SB27	6/13	0.19-2.8	17	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.031	41	mg/kg	SB27	9/12	0.19-2.8	41	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.015	6.2	mg/kg	SB27	6/13	0.33-2.7	6.2	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.01	24	mg/kg	SB27	3/16	0.001-2.8	24	NA	3.57	c	1000	CT RSR	YES	ASL
	85-01-8	Phenanthrene	0.017	160	mg/kg	SB27	12/13	0.44-0.44	160	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.021	170	mg/kg	SB27	12/13	0.44-0.44	170	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	53469-21-9	Aroclor-1242	0.0095	0.0095	mg/kg	MW4D	1/13	0.0034-0.27	0.0095	NA	0.221	c	1	CT RSR	NO	BSL
	11097-69-1	Aroclor-1254	0.0072	0.0072	mg/kg	MW4D	1/13	0.0034-0.27	0.0072	NA	0.112	n	1	CT RSR	NO	BSL
	108-95-2	Phenol	0.18	0.18	mg/kg	SS24	1/13	0.19-81	0.18	NA	1830	n	1000	CT RSR	NO	BSL
	108-88-3	Toluene	0.001	8.5	mg/kg	SB145	2/8	0.001-0.075	8.5	NA	497	n	500	CT RSR	NO	BSL
	106-42-3	m&p-Xylene	0.81	0.81	mg/kg	#N/A	1/6	0.002-0.15	0.81	NA	343	n	NA	CT RSR	NO	BSL
	95-47-6	o-Xylene	0.11	0.11	mg/kg	SB145	1/6	0.001-0.075	0.11	NA	383	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	1400	9570	mg/kg	MW4D	12/12	-	9570	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	1.2	1.2	mg/kg	SB25	1/11	0.6464-14	1.2	NA	3.13	n	27	CT RSR	NO	BSL
	7440-38-2	Arsenic	1.1	21.5	mg/kg	SB25	12/12	-	21.5	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	25.5	603	mg/kg	MW4D	12/12	-	603	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.33	0.84	mg/kg	SB35	10/12	2.3-2.4	0.84	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.25	28	mg/kg	MW4D	10/12	0.0787-0.0811	28	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	350	27300	mg/kg	SB26	10/10	-	27300	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	4.3	16.5	mg/kg	MW4D	12/12	-	16.5	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	2.9	11.2	mg/kg	SB35	12/12	-	11.2	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	13.5	2143	mg/kg	SB26	12/12	-	2143	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	2230	15400	mg/kg	SB35	10/10	-	15400	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	5.9	1020	mg/kg	MW4D	12/12	-	1020	NA	400		400	CT RSR	YES	ASL

TABLE A-2.2i
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area I Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7439-95-4	Magnesium	82.5	2550	mg/kg	SB34	10/10	-	2550	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	9.6	336	mg/kg	SB35	10/10	-	336	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.12	1.2	mg/kg	SS29	8/12	0.0539-0.1013	1.2	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	7.2	59.3	mg/kg	SB35	12/12	-	59.3	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	242	1930	mg/kg	SB34	10/10	-	1930	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	1	2.3	mg/kg	SB35	5/12	0.608-19.2	2.3	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.17	92.5	mg/kg	MW4D	11/12	0.2155-0.2155	92.5	NA	39.1	n	340	CT RSR	YES	ASL
	7440-23-5	Sodium	102	404	mg/kg	SB25	5/10	93.0544-121.5532	404	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	0.95	1.5	mg/kg	SS29	4/12	0.6099-26.3	1.5	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	5.3	28.6	mg/kg	MW4D	2/2	-	28.6	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	10.8	157	mg/kg	SB35	12/12	-	157	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	32.6	3240	mg/kg	SB26	12/12	-	3240	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.1j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area J Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface Soil	67-64-1	Acetone	0.002	0.056	mg/kg	SB48	8/18	0.011-0.015	0.056	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.017	0.16	mg/kg	SB16	6/10	0.22-0.42	0.16	NA	782	n	NA	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.021	0.36	mg/kg	SS21	3/10	0.22-0.48	0.36	NA	782	n	NA	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.0023	0.0023	mg/kg	SB48	1/16	0.0019-0.019	0.0023	NA	0.27	c	0.34	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.012	0.013	mg/kg	SS21	2/8	0.22-0.48	0.013	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.055	2.6	mg/kg	SS-25	11/20	0.23-0.77	2.6	NA	34.7	c	44	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.026	0.026	mg/kg	SB48	1/18	0.001-0.015	0.026	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.011	0.16	mg/kg	SS-25	3/20	0.22-0.49	0.16	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.017	0.017	mg/kg	SS28	1/10	0.22-0.48	0.017	NA	3060	n	NA	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0021	0.0075	mg/kg	SS-24	6/16	0.0019-0.019	0.0075	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.0019	0.01	mg/kg	SS21, SS-24	7/17	0.0019-0.013	0.01	NA	1.62	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.35	8.1	mg/kg	SS-25	4/17	0.00055-1.4	8.1	NA	156	n	1400	CT RSR	NO	BSL
	72-54-8	4,4'-DDD	0.0042	0.026	mg/kg	MW3D	4/19	0.0036-0.0051	0.026	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0018	0.019	mg/kg	MW3D	13/18	0.0038-0.0051	0.019	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0053	0.042	mg/kg	SS-25	8/17	0.0036-0.0051	0.042	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.01	1.3	mg/kg	SS-27	7/20	0.23-0.48	1.3	NA	7.82	n	270	CT RSR	NO	BSL
	540-59-0	1,2-Dichloroethene (total)	0.008	0.008	mg/kg	SS-25	1/10	0.011-0.015	0.008	NA	70.4	n	NA	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.002	0.0026	mg/kg	MW3D	3/19	0.0036-0.0051	0.0026	NA	0.0303	c	0.038	CT RSR	NO	BSL
	84-66-2	Diethyl phthalate	0.022	0.022	mg/kg	SS05	1/20	0.22-0.51	0.022	NA	4890	n	1000	CT RSR	NO	BSL
	131-11-3	Dimethyl phthalate	0.032	0.14	mg/kg	SS-26	2/20	0.22-0.51	0.14	NA	NA		1000	CT RSR	YES	NBA
	84-74-2	Di-n-butylphthalate	0.016	0.13	mg/kg	SS21	3/20	0.22-0.51	0.13	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.03	0.69	mg/kg	SS21	6/20	0.22-0.51	0.69	NA	NA		1000	CT RSR	YES	NBA
	959-98-8	Endosulfan I	0.00065	0.00083	mg/kg	SS20	2/18	0.0019-0.0026	0.00083	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0032	0.049	mg/kg	SS-25	7/18	0.0036-0.29	0.049	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.02	0.02	mg/kg	SS-25	1/18	0.0036-0.0066	0.02	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0076	0.023	mg/kg	SS-27	3/18	0.0036-0.29	0.023	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0033	0.019	mg/kg	SS21	3/18	0.0036-0.0051	0.019	NA	1.83	n	20	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.00025	0.0019	mg/kg	SS-27	2/19	0.0019-0.0026	0.0019	NA	0.108	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.0018	0.0023	mg/kg	SB48	3/15	0.0019-0.0026	0.0023	NA	0.0533	c	0.067	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.038	0.038	mg/kg	SS21	1/16	0.019-0.19	0.038	NA	30.6	n	340	CT RSR	NO	BSL
	75-09-2	Methylene chloride	0.078	0.078	mg/kg	SS-25	1/18	0.001-0.015	0.078	NA	10.7	c	82	CT RSR	NO	BSL
	95-48-7	2-Methylphenol	0.048	0.048	mg/kg	SS-27	1/20	0.22-0.51	0.048	NA	306	n	1000	CT RSR	NO	BSL
	106-44-5	4-Methylphenol	0.17	0.17	mg/kg	SS-27	1/20	0.22-0.51	0.17	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.006	0.008	mg/kg	SS21	7/8	0.006-0.006	0.008	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.023	1.3	mg/kg	SS-27	6/20	0.23-0.51	1.3	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.016	0.32	mg/kg	SS-27	13/20	0.22-0.39	0.32	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.012	3.2	mg/kg	SS-27	14/20	0.37-0.39	3.2	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.03	6.2	mg/kg	SS-27	18/20	0.38-0.39	6.2	NA	0.148	c	1	CT RSR	YES	ASL

TABLE A-2.1j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area J Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	50-32-8	Benzo(a)pyrene	0.021	3.9	mg/kg	SS-27	18/20	0.38-0.39	3.9	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.029	3.7	mg/kg	SS-27	18/20	0.38-0.39	3.7	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.031	2.7	mg/kg	SS-27	17/20	0.38-0.41	2.7	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.032	3	mg/kg	SS-27	17/20	0.37-0.39	3	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.016	2	mg/kg	SS-27	10/20	0.36-0.51	2	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.029	6.1	mg/kg	SS-27	18/20	0.38-0.39	6.1	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.022	1.2	mg/kg	SS-25, SS-26	14/20	0.37-0.41	1.2	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.056	12	mg/kg	SS-27	20/20	-	12	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.022	1.8	mg/kg	SS-27	8/20	0.23-0.51	1.8	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.022	2.6	mg/kg	SS-27	18/20	0.38-0.39	2.6	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.029	0.76	mg/kg	SS-27	3/20	0.22-0.49	0.76	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.001	1	mg/kg	SS-27	5/23	0.001-0.49	1	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.021	14	mg/kg	SS-27	18/20	0.38-0.39	14	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.036	12	mg/kg	SS-27	20/20	-	12	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.022	19	mg/kg	SS-23	7/20	0.0045-0.049	19	NA	0.112	n	1	CT RSR	YES	ASL
	11096-82-5	Aroclor-1260	0.026	1.4	mg/kg	SS-27	4/20	0.036-0.051	1.4	NA	0.221	c	1	CT RSR	YES	ASL
	108-95-2	Phenol	0.068	0.068	mg/kg	SS-27	1/20	0.22-0.51	0.068	NA	1830	n	1000	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.002	0.008	mg/kg	SS-25	1/18	0.001-0.015	0.008	NA	0.554	c	12	CT RSR	NO	BSL
	108-88-3	Toluene	0.0005	0.0005	mg/kg	SB48	1/18	0.001-0.015	0.0005	NA	497	n	500	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.001	0.001	mg/kg	SS11	1/18	0.001-0.51	0.001	NA	6.19	n	680	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.002	0.002	mg/kg	SS-25	1/18	0.001-0.015	0.002	NA	2.82	c	56	CT RSR	NO	BSL
	1330-20-7	Xylene (total)	0.003	0.003	mg/kg	SS-25	1/11	0.006-0.015	0.003	NA	62.7	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	4080	14000	mg/kg	SB48	19/19	-	14000	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	1.4	3.6	mg/kg	SS21	1/12	0.52-17.3	3.6	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.4	10.3	mg/kg	SS-26	16/19	0.96-1.3	10.3	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	22.5	142	mg/kg	SS-27	19/19	-	142	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.24	1.6	mg/kg	SS21	9/19	0.06-3	1.6	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.16	12.8	mg/kg	SS-25	13/19	0.09-3.8	12.8	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	265	13700	mg/kg	SS-26	17/17	-	13700	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	7	19200	mg/kg	SS-25	19/19	-	19200	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	3.4	12.4	mg/kg	SS150	19/19	-	12.4	NA	2.34	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	12.8	35300	mg/kg	SS-25	16/19	17.7-38.1	35300	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	7090	20376	mg/kg	SS150	17/17	-	20376	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	7.9	746	mg/kg	SS-25	16/19	8.2-13.3	746	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	1270	4636	mg/kg	SS150	17/17	-	4636	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	117	353	mg/kg	SB16	17/17	-	353	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.068	0.59	mg/kg	SB48	5/19	0.06-0.99	0.59	NA	0.56	n	20	CT RSR	YES	ASL

TABLE A-2.1j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area J Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7440-02-0	Nickel	9	2460	mg/kg	SS-25	19/19	-	2460	NA	155	n	1400	CT RSR	YES	ASL
	7440-09-7	Potassium	388	3850	mg/kg	SS150	17/17	-	3850	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.94	1.2	mg/kg	SS11	2/19	0.6536-23.7	1.2	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.27	13.9	mg/kg	SS-27	15/19	0.2002-4.4	13.9	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	84.1	405	mg/kg	SS05	4/17	29.2-212	405	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	0.84	1.8	mg/kg	SS21	3/19	0.7226-32.6	1.8	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	2.1	4.9	mg/kg	SB48	2/2	-	4.9	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	12.4	474	mg/kg	SS-26	19/19	-	474	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	19.3	18400	mg/kg	SS-25	19/19	-	18400	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan I and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.2j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area J Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Aggregate Soil	67-64-1	Acetone	0.002	0.34	mg/kg	SB169	18/30	0.011-0.015	0.34	NA	6130	n	500	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.013	0.16	mg/kg	SB16	7/28	0.22-3.7	0.16	NA	782	n	NA	CT RSR	NO	BSL
	309-00-2	Aldrin	0.0032	0.0032	mg/kg	SB48	1/35	0.0017-0.092	0.0032	NA	0.0286	c	0.036	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.021	0.36	mg/kg	SS21	11/28	0.22-3.7	0.36	NA	782	n	NA	CT RSR	NO	BSL
	319-85-7	beta-BHC	0.0023	0.0073	mg/kg	SB14	2/34	0.0017-0.092	0.0073	NA	0.27	c	0.34	CT RSR	NO	BSL
	319-86-8	delta-BHC	0.002	0.002	mg/kg	SB48	1/35	0.0017-0.092	0.002	NA	0.27	c	0.097	CT RSR	NO	BSL
	58-89-9	gamma-BHC	0.017	0.017	mg/kg	SB14	1/37	0.0017-0.092	0.017	NA	0.516	c	20	CT RSR	NO	BSL
	92-52-4	Biphenyl	0.012	0.085	mg/kg	SB15	6/23	0.22-3.7	0.085	NA	391	n	NA	CT RSR	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	0.055	2.6	mg/kg	SS-25	25/38	0.23-0.77	2.6	NA	34.7	c	44	CT RSR	NO	BSL
	74-83-9	Bromomethane	0.004	0.004	mg/kg	SB14	1/30	0.001-0.61	0.004	NA	0.732	n	95	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.005	0.066	mg/kg	SB14	8/30	0.001-1.2	0.066	NA	2780	n	500	CT RSR	NO	BSL
	104-51-8	n-Butylbenzene	0.017	0.017	mg/kg	SB07	1/15	0.001-0.002	0.017	NA	NA		500	CT RSR	YES	NBA
	135-98-8	sec-Butylbenzene	0.013	0.013	mg/kg	SB24	1/15	0.001-0.002	0.013	NA	NA		500	CT RSR	YES	NBA
	85-68-7	Butyl benzylphthalate	0.011	0.16	mg/kg	SS-25	4/38	0.22-3.7	0.16	NA	256	c	1000	CT RSR	NO	BSL
	105-60-2	Caprolactam	0.017	0.72	mg/kg	SB23	4/28	0.22-3.7	0.72	NA	3060	n	NA	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.001	0.003	mg/kg	SB08	3/30	0.001-0.61	0.003	NA	82.1	n	500	CT RSR	NO	BSL
	5103-71-9	alpha-Chlordane	0.0016	0.0075	mg/kg	SS-24	7/31	0.0017-0.092	0.0075	NA	1.62	c	NA	CT RSR	NO	BSL
	5103-74-2	gamma-Chlordane	0.00052	0.01	mg/kg	SB16	14/32	0.0017-0.092	0.01	NA	1.62	c	NA	CT RSR	NO	BSL
	106-43-4	4-Chlorotoluene	0.01	0.01	mg/kg	SB23	1/15	0.001-0.002	0.01	NA	548	n	500	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.000044	8.1	mg/kg	SS-25	5/29	0.00017-4.5	8.1	NA	156	n	1400	CT RSR	NO	BSL
	99-87-6	Cymene	0.011	0.015	mg/kg	SB23	2/15	0.001-0.002	0.015	NA	NA		500	CT RSR	YES	NBA
	72-54-8	4,4'-DDD	0.0021	0.031	mg/kg	SB15	9/36	0.0034-0.019	0.031	NA	2.02	c	2.6	CT RSR	NO	BSL
	72-55-9	4,4'-DDE	0.0016	0.068	mg/kg	SB14	20/36	0.0034-0.18	0.068	NA	1.43	c	1.8	CT RSR	NO	BSL
	50-29-3	4,4'-DDT	0.0053	0.042	mg/kg	SS-25	11/32	0.0036-0.18	0.042	NA	1.72	c	1.8	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.01	1.3	mg/kg	SS-27	12/38	0.23-3.7	1.3	NA	7.82	n	270	CT RSR	NO	BSL
	540-59-0	1,2-Dichloroethene (total)	0.008	0.008	mg/kg	SS-25	1/10	0.011-0.015	0.008	NA	70.4	n	NA	CT RSR	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	0.002	0.002	mg/kg	SB23, SB24	2/20	0.001-0.61	0.002	NA	78.2	n	500	CT RSR	NO	BSL
	60-57-1	Dieldrin	0.002	0.13	mg/kg	SB14	13/37	0.0036-0.019	0.13	NA	0.0303	c	0.038	CT RSR	YES	ASL
	84-66-2	Diethyl phthalate	0.022	0.44	mg/kg	SB07	3/37	0.22-3.7	0.44	NA	4890	n	1000	CT RSR	NO	BSL
	131-11-3	Dimethyl phthalate	0.032	0.14	mg/kg	SS-26	3/38	0.22-3.7	0.14	NA	NA		1000	CT RSR	YES	NBA
	84-74-2	Di-n-butylphthalate	0.016	0.13	mg/kg	SS21	7/38	0.22-3.7	0.13	NA	611	n	1000	CT RSR	NO	BSL
	117-84-0	Di-n-octyl phthalate	0.03	0.69	mg/kg	SS21	6/38	0.22-3.7	0.69	NA	NA		1000	CT RSR	YES	NBA
		Dioxins/Furans														
	1746-01-6	2,3,7,8-TCDD	0.000000778	0.000000819	mg/kg	CAP04	3/3	-	0.000000819	NA	0.00000449	c	NA	CT RSR	NO	(3)
	40321-76-4	1,2,3,7,8-PeCDD	0.00000219	0.0000035	mg/kg	CAP04	3/3	-	0.0000035	NA	NA		NA	CT RSR	NO	(3)
	39227-28-6	1,2,3,4,7,8-HxCDD	0.00000176	0.00000403	mg/kg	CAP04	3/3	-	0.00000403	NA	NA		NA	CT RSR	NO	(3)
	57653-85-7	1,2,3,6,7,8-HxCDD	0.00000873	0.000014	mg/kg	CAP04	3/3	-	0.000014	NA	NA		NA	CT RSR	NO	(3)
	19408-74-3	1,2,3,7,8,9-HxCDD	0.00000429	0.00000815	mg/kg	CAP04	3/3	-	0.00000815	NA	NA		NA	CT RSR	NO	(3)
	35822-46-9	1,2,3,4,6,7,8-HpCDD	0.0000779	0.000161	mg/kg	CAP04	3/3	-	0.000161	NA	NA		NA	CT RSR	NO	(3)
	3268-87-9	1,2,3,4,6,7,8,9-OCDD	0.000567	0.00126	mg/kg	CAP04	3/3	-	0.00126	NA	NA		NA	CT RSR	NO	(3)
	41903-57-5	Total TCDD	0.0000176	0.0000304	mg/kg	CAP04	3/3	-	0.0000304	NA	NA		NA	CT RSR	NO	(3)

TABLE A-2.2j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area J Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	36088-22-9	Total PeCDD	0.0000289	0.0000589	mg/kg	CAP04	3/3	-	0.0000589	NA	NA		NA	CT RSR	NO	(3)
	34465-46-8	Total HxCDD	0.0000624	0.000125	mg/kg	CAP04	3/3	-	0.000125	NA	NA		NA	CT RSR	NO	(3)
	37871-00-4	Total HpCDD	0.000156	0.000342	mg/kg	CAP04	3/3	-	0.000342	NA	NA		NA	CT RSR	NO	(3)
	51207-31-9	2,3,7,8-TCDF	0.0000129	0.0000409	mg/kg	CAP03	3/3	-	0.0000409	NA	NA		NA	CT RSR	NO	(3)
	57117-41-6	1,2,3,7,8-PeCDF	0.00000674	0.00000912	mg/kg	CAP04	3/3	-	0.00000912	NA	NA		NA	CT RSR	NO	(3)
	57117-31-4	2,3,4,7,8-PeCDF	0.0000174	0.0000252	mg/kg	CAP03	3/3	-	0.0000252	NA	NA		NA	CT RSR	NO	(3)
	70648-26-9	1,2,3,4,7,8-HxCDF	0.0000263	0.0000647	mg/kg	CAP04	3/3	-	0.0000647	NA	NA		NA	CT RSR	NO	(3)
	57117-44-9	1,2,3,6,7,8-HxCDF	0.0000142	0.0000258	mg/kg	CAP04	3/3	-	0.0000258	NA	NA		NA	CT RSR	NO	(3)
	72918-21-9	1,2,3,7,8,9-HxCDF	0.00000657	0.00000841	mg/kg	CAP03	3/3	-	0.00000841	NA	NA		NA	CT RSR	NO	(3)
	60851-34-5	2,3,4,6,7,8-HxCDF	0.000013	0.0000219	mg/kg	CAP04	3/3	-	0.0000219	NA	NA		NA	CT RSR	NO	(3)
	67562-39-4	1,2,3,4,6,7,8-HpCDF	0.0000801	0.000236	mg/kg	CAP04	3/3	-	0.000236	NA	NA		NA	CT RSR	NO	(3)
	55673-89-7	1,2,3,4,7,8,9-HpCDF	0.00000781	0.0000306	mg/kg	CAP04	3/3	-	0.0000306	NA	NA		NA	CT RSR	NO	(3)
	39001-02-0	1,2,3,4,6,7,8,9-OCDF	0.0000802	0.000362	mg/kg	CAP04	3/3	-	0.000362	NA	NA		NA	CT RSR	NO	(3)
	55722-27-5	Total TCDF	0.000185	0.000255	mg/kg	CAP04	3/3	-	0.000255	NA	NA		NA	CT RSR	NO	(3)
	30402-15-4	Total PeCDF	0.000202	0.000344	mg/kg	CAP04	3/3	-	0.000344	NA	NA		NA	CT RSR	NO	(3)
	55684-94-1	Total HxCDF	0.000161	0.000339	mg/kg	CAP04	3/3	-	0.000339	NA	NA		NA	CT RSR	NO	(3)
	38998-75-3	Total HpCDF	0.000139	0.000433	mg/kg	CAP04	3/3	-	0.000433	NA	NA		NA	CT RSR	NO	(3)
		2,3,7,8-TCDD TEQ	0.0000232	0.0000325	mg/kg	CAP04	3/3	-	0.0000325	NA	NA		NA	CT RSR	YES	NBA
	959-98-8	Endosulfan I	0.00065	0.00083	mg/kg	SS20	2/36	0.0017-0.092	0.00083	NA	36.7	n	410	CT RSR	NO	BSL
	1031-07-8	Endosulfan sulfate	0.0032	0.049	mg/kg	SS-25	9/36	0.0034-0.29	0.049	NA	36.7	n	410	CT RSR	NO	BSL
	72-20-8	Endrin	0.0024	0.078	mg/kg	SB14	5/36	0.0034-0.019	0.078	NA	1.83	n	20	CT RSR	NO	BSL
	7421-93-4	Endrin aldehyde	0.0044	0.024	mg/kg	SB14	8/36	0.0035-0.29	0.024	NA	1.83	n	20	CT RSR	NO	BSL
	53494-70-5	Endrin ketone	0.0033	0.026	mg/kg	SB22	5/35	0.0035-0.18	0.026	NA	1.83	n	20	CT RSR	NO	BSL
	100-41-4	Ethylbenzene	0.001	0.005	mg/kg	SB14	2/30	0.001-0.61	0.005	NA	5.39	c	500	CT RSR	NO	BSL
	76-44-8	Heptachlor	0.00025	0.0031	mg/kg	SB24	7/37	0.0019-0.092	0.0031	NA	0.108	c	0.14	CT RSR	NO	BSL
	1024-57-3	Heptachlor epoxide	0.00032	0.037	mg/kg	SB14	10/32	0.0017-0.019	0.037	NA	0.0533	c	0.067	CT RSR	NO	BSL
	591-78-6	2-Hexanone	0.002	0.002	mg/kg	SB08	1/30	0.001-1.2	0.002	NA	20.9	n	NA	CT RSR	NO	BSL
	98-82-8	Isopropylbenzene	0.002	0.004	mg/kg	SB23	2/20	0.001-0.61	0.004	NA	205	n	500	CT RSR	NO	BSL
	72-43-5	Methoxychlor	0.0019	0.064	mg/kg	SB14	6/34	0.018-0.92	0.064	NA	30.6	n	340	CT RSR	NO	BSL
	79-20-9	Methyl acetate	0.96	0.96	mg/kg	SB169	1/1	-	0.96	NA	7820	n	NA	CT RSR	NO	BSL
	75-09-2	Methylene chloride	0.078	0.078	mg/kg	SS-25	1/30	0.001-0.61	0.078	NA	10.7	c	82	CT RSR	NO	BSL
	108-10-1	4-Methyl-2-Pentanone	0.001	0.002	mg/kg	SB14	2/30	0.001-1.2	0.002	NA	532	n	500	CT RSR	NO	BSL
	95-48-7	2-Methylphenol	0.048	0.048	mg/kg	SS-27	1/38	0.22-3.7	0.048	NA	306	n	1000	CT RSR	NO	BSL
	106-44-5	4-Methylphenol	0.024	0.17	mg/kg	SS-27	5/38	0.22-3.7	0.17	NA	30.6	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.001	0.009	mg/kg	SB23, SB24	15/20	0.005-0.61	0.009	NA	43.3	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.023	1.3	mg/kg	SS-27	14/38	0.23-3.7	1.3	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.016	0.66	mg/kg	SB08	25/38	0.22-0.72	0.66	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.012	3.2	mg/kg	SS-27	26/38	0.25-3.6	3.2	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	0.03	6.2	mg/kg	SS-27	32/37	0.37-0.39	6.2	NA	0.148	c	1	CT RSR	YES	ASL

TABLE A-2.2j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area J Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	50-32-8	Benzo(a)pyrene	0.021	3.9	mg/kg	SS-27	32/38	0.37-0.72	3.9	NA	0.0148	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.029	3.7	mg/kg	SS-27	32/38	0.37-0.72	3.7	NA	0.148	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.031	2.7	mg/kg	SS-27	31/38	0.37-0.72	2.7	NA	3.57	c	1000	CT RSR	NO	BSL
	207-08-9	Benzo(k)fluoranthene	0.032	3	mg/kg	SS-27	28/38	0.37-1.1	3	NA	1.48	c	8.4	CT RSR	YES	ASL
	86-74-8	Carbazole	0.016	2	mg/kg	SS-27	20/37	0.36-3.7	2	NA	NA		31	CT RSR	YES	NBA
	218-01-9	Chrysene	0.029	6.1	mg/kg	SS-27	32/38	0.37-0.72	6.1	NA	14.8	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.022	1.2	mg/kg	SS-27	24/38	0.25-3.7	1.2	NA	0.0148	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	0.056	12	mg/kg	SS-27	34/37	0.37-0.39	12	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.022	1.8	mg/kg	SS-27	17/38	0.23-3.7	1.8	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.022	2.6	mg/kg	SS-27	32/37	0.37-0.39	2.6	NA	0.148	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.029	0.76	mg/kg	SS-27	10/38	0.22-3.7	0.76	NA	31.3	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.001	1	mg/kg	SS-27	17/48	0.001-3.7	1	NA	3.57	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.021	14	mg/kg	SS-27	31/38	0.37-3.6	14	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	0.036	12	mg/kg	SS-27	34/38	0.37-0.72	12	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	53469-21-9	Aroclor-1242	0.046	0.046	mg/kg	CAP16	1/50	0.0041-1.8	0.046	NA	0.221	c	1	CT RSR	NO	BSL
	11097-69-1	Aroclor-1254	0.022	19	mg/kg	SS-23	21/50	0.0041-0.19	19	NA	0.112	n	1	CT RSR	YES	ASL
	11096-82-5	Aroclor-1260	0.026	1.8	mg/kg	CAP13	20/50	0.0041-1.8	1.8	NA	0.221	c	1	CT RSR	YES	ASL
	108-95-2	Phenol	0.044	0.068	mg/kg	SS-27	2/38	0.22-3.7	0.068	NA	1830	n	1000	CT RSR	NO	BSL
	103-65-1	n-Propylbenzene	0.004	0.007	mg/kg	SB23	2/15	0.001-0.002	0.007	NA	344	n	500	CT RSR	NO	BSL
	127-18-4	Tetrachloroethene	0.002	0.008	mg/kg	SS-25	2/30	0.001-0.61	0.008	NA	0.554	c	12	CT RSR	NO	BSL
	108-88-3	Toluene	0.0005	0.002	mg/kg	SB21	3/30	0.001-0.61	0.002	NA	497	n	500	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.001	0.001	mg/kg	SS11	1/30	0.001-0.61	0.001	NA	6.19	n	680	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.001	0.044	mg/kg	SB23	6/30	0.001-0.61	0.044	NA	2.82	c	56	CT RSR	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	0.001	0.19	mg/kg	SB23	3/19	0.001-0.01	0.19	NA	6.22	n	500	CT RSR	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	0.037	0.062	mg/kg	SB23	2/19	0.001-0.01	0.062	NA	78.2	n	500	CT RSR	NO	BSL
	75-01-4	Vinyl chloride	0.002	0.015	mg/kg	SB24	2/30	0.001-0.61	0.015	NA	0.0597	c	0.32	CT RSR	NO	BSL
	106-42-3	m&p-Xylene	0.003	0.037	mg/kg	#N/A	3/16	0.002-0.61	0.037	NA	343	n	NA	CT RSR	NO	BSL
	95-47-6	o-Xylene	0.004	0.043	mg/kg	SB14	3/16	0.001-0.61	0.043	NA	383	n	500	CT RSR	NO	BSL
	1330-20-7	Xylene (total)	0.003	0.003	mg/kg	SS-25	1/14	0.005-0.015	0.003	NA	62.7	n	500	CT RSR	NO	BSL
		Metals														
	7429-90-5	Aluminum	4080	15500	mg/kg	SB169	35/35	-	15500	NA	7740	n	NA	CT RSR	YES	ASL
	7440-36-0	Antimony	1.27	3.6	mg/kg	SS21	3/27	0.52-21.8	3.6	NA	3.13	n	27	CT RSR	YES	ASL
	7440-38-2	Arsenic	0.9	16.7	mg/kg	SB21	31/35	0.96-10.4	16.7	NA	0.389	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	22.5	1230	mg/kg	SB21	35/35	-	1230	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.18	2.5	mg/kg	SB21	22/35	0.06-3.7	2.5	NA	15.6	n	2	CT RSR	NO	BSL
	7440-43-9	Cadmium	0.15	12.8	mg/kg	SS-25	26/35	0.09-12.3	12.8	NA	7	n	34	CT RSR	YES	ASL
	7440-70-2	Calcium	265	16700	mg/kg	SB21	30/30	-	16700	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	5.7	19200	mg/kg	SS-25	35/35	-	19200	NA	0.293	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	1.8	12.4	mg/kg	SB07, SS-25	35/35	-	12.4	NA	2.34	n	70	CT RSR	YES	ASL

TABLE A-2.2j
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area J Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	7440-50-8	Copper	12.8	35300	mg/kg	SS-25	32/35	17.7-38.1	35300	NA	313	n	2500	CT RSR	NO	See text
	7439-89-6	Iron	5440	29200	mg/kg	SB169	30/30	-	29200	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	2.6	746	mg/kg	SS-25	32/35	8.2-13.3	746	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	850	7670	mg/kg	SB169	30/30	-	7670	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	77.1	442	mg/kg	SB07	30/30	-	442	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.068	4.9	mg/kg	MW3D	17/35	0.046-0.99	4.9	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	6.3	2460	mg/kg	SS-25	35/35	-	2460	NA	155	n	1400	CT RSR	YES	ASL
	7440-09-7	Potassium	388	5680	mg/kg	SB169	30/30	-	5680	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	0.94	1.2	mg/kg	SS11	2/35	0.6536-29.9	1.2	NA	39.1	n	340	CT RSR	NO	BSL
	7440-22-4	Silver	0.27	13.9	mg/kg	SS-27	21/35	0.2002-5.6	13.9	NA	39.1	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	84.1	1700	mg/kg	SB07	16/30	29.2-212	1700	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-28-0	Thallium	0.84	2	mg/kg	SB07	4/35	0.7226-41.1	2	NA	NA		5.4	CT RSR	YES	NBA
	7440-31-5	Tin	2.1	98.8	mg/kg	MW3D	3/5	19.5-28	98.8	NA	4690	n	2000	CT RSR	NO	BSL
	7440-62-2	Vanadium	12.4	474	mg/kg	SS-26	35/35	-	474	NA	0.548	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	19.3	18400	mg/kg	SS-25	35/35	-	18400	NA	2350	n	20000	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

(3) Evaluated as 2,3,7,8-TCDD TEQ.

Surrogate screening values used:

- Endosulfan value used for Endosulfan I and Endosulfan sulfate.
- Endrin value used for Endrin aldehyde and Endrin ketone.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Anthracene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.

NA = not available.

NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.

BSL = below screening level.

NBA = no screening benchmark available.

TABLE A-2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current
Medium: Sediment
Exposure Medium: Surface sediment

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Sediment	67-64-1	Acetone	0.029	0.053	mg/kg	SED10	2/4	0.046-0.1	0.053	NA	6130	n	500	CT RSR	NO	BSL
	100-52-7	Benzaldehyde	0.72	0.72	mg/kg	SED10	1/1	-	0.72	NA	782	n	NA	CT RSR	NO	BSL
	78-93-3	2-Butanone	0.005	0.031	mg/kg	SD05	3/4	0.022-0.022	0.031	NA	2780	n	500	CT RSR	NO	BSL
	85-68-7	Butyl benzylphthalate	0.013	0.013	mg/kg	SD04	1/3	1.1-6.6	0.013	NA	256	c	1000	CT RSR	NO	BSL
	86-74-8	Carbazole	0.1	2.7	mg/kg	SED10	3/3	-	2.7	NA	NA		31	CT RSR	YES	NBA
	5103-74-2	gamma-Chlordane	0.0018	0.0035	mg/kg	SD05	2/3	0.019-0.019	0.0035	NA	1.6	c	NA	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	0.21	0.21	mg/kg	SED10	1/3	0.651-0.801	0.21	NA	156	n	1400	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.035	0.14	mg/kg	SD05	2/3	6.6-6.6	0.14	NA	7.8	n	270	CT RSR	NO	BSL
	84-66-2	Diethyl phthalate	0.46	0.46	mg/kg	SED10	1/3	0.46-1.1	0.46	NA	4890	n	1000	CT RSR	NO	BSL
	33213-65-9	Endosulfan II	0.0059	0.0059	mg/kg	SD05	1/3	0.019-0.023	0.0059	NA	37	n	410	CT RSR	NO	BSL
	95-48-7	2-Methylphenol	0.006	0.056	mg/kg	SD05	2/3	6.6-6.6	0.056	NA	306	n	1000	CT RSR	NO	BSL
	106-44-5	4-Methylphenol	0.057	0.057	mg/kg	SD04	1/3	1.1-6.6	0.057	NA	31	n	340	CT RSR	NO	BSL
	1634-04-4	MTBE	0.017	0.017	mg/kg	SED10	1/2	0.011-0.011	0.017	NA	43	c	500	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.028	0.62	mg/kg	SED10	3/3	-	0.62	NA	344	n	1000	CT RSR	NO	BSL
	208-96-8	Acenaphthylene	0.03	0.29	mg/kg	SED10	3/3	-	0.29	NA	344	n	1000	CT RSR	NO	BSL
	120-12-7	Anthracene	0.19	2.1	mg/kg	SED10	3/3	-	2.1	NA	1720	n	1000	CT RSR	NO	BSL
	56-55-3	Benzo(a)anthracene	1	6.9	mg/kg	SED10	3/3	-	6.9	NA	0.15	c	1	CT RSR	YES	ASL
	50-32-8	Benzo(a)pyrene	0.96	7.2	mg/kg	SED10	3/3	-	7.2	NA	0.015	c	1	CT RSR	YES	ASL
	205-99-2	Benzo(b)fluoranthene	1.3	11	mg/kg	SED10	3/3	-	11	NA	0.15	c	1	CT RSR	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.46	6.1	mg/kg	SED10	3/3	-	6.1	NA	3.6	c	1000	CT RSR	YES	ASL
	207-08-9	Benzo(k)fluoranthene	0.8	3.3	mg/kg	SED10	3/3	-	3.3	NA	1.5	c	8.4	CT RSR	YES	ASL
	218-01-9	Chrysene	1.1	7.5	mg/kg	SED10	3/3	-	7.5	NA	15	c	84	CT RSR	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	0.2	1.3	mg/kg	SED10	3/3	-	1.3	NA	0.015	c	1	CT RSR	YES	ASL
	206-44-0	Fluoranthene	2	21	mg/kg	SED10	3/3	-	21	NA	229	n	1000	CT RSR	NO	BSL
	86-73-7	Fluorene	0.044	0.81	mg/kg	SED10	3/3	-	0.81	NA	229	n	1000	CT RSR	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.48	6.3	mg/kg	SED10	3/3	-	6.3	NA	0.15	c	1	CT RSR	YES	ASL
	91-57-6	2-Methylnaphthalene	0.022	0.083	mg/kg	SD05	2/3	6.6-6.6	0.083	NA	31	n	474	CT RSR	NO	BSL
	91-20-3	Naphthalene	0.026	0.12	mg/kg	SD05	3/3	-	0.12	NA	3.6	c	1000	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.87	13	mg/kg	SED10	3/3	-	13	NA	1720	n	1000	CT RSR	NO	BSL
	129-00-0	Pyrene	1.7	20	mg/kg	SED10	3/3	-	20	NA	172	n	1000	CT RSR	NO	BSL
		PCBs														
	11097-69-1	Aroclor-1254	0.055	1.8	mg/kg	SED10	3/3	-	1.8	NA	0.11	n	1	CT RSR	YES	ASL
	11096-82-5	Aroclor-1260	2.9	2.9	mg/kg	SED10	1/3	0.23-0.26	2.9	NA	0.22	c	1	CT RSR	YES	ASL
	108-95-2	Phenol	0.043	1.7	mg/kg	SED10	2/3	1.1-1.1	1.7	NA	1830	n	1000	CT RSR	NO	BSL
	108-88-3	Toluene	0.009	0.024	mg/kg	SD05	2/4	0.003-0.011	0.024	NA	497	n	500	CT RSR	NO	BSL

TABLE A-2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current
Medium: Sediment
Exposure Medium: Surface sediment

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Metals														
	7429-90-5	Aluminum	5860	11000	mg/kg	SED10	3/3	-	11000	NA	7740	n	NA	CT RSR	YES	ASL
	7440-38-2	Arsenic	1.6	1.6	mg/kg	SD04, SD05	2/3	48-48	1.6	NA	0.39	c	10	CT RSR	YES	ASL
	7440-39-3	Barium	42.3	146	mg/kg	SD04	3/3	-	146	NA	1530	n	4700	CT RSR	NO	BSL
	7440-41-7	Beryllium	0.24	0.26	mg/kg	SD04	2/3	2.4-2.4	0.26	NA	16	n	2	CT RSR	NO	BSL
	7440-70-2	Calcium	1710	14000	mg/kg	SED10	3/3	-	14000	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-47-3	Chromium Total	11.7	290	mg/kg	SED10	3/3	-	290	NA	0.29	c	NA	CT RSR	YES	ASL
	7440-48-4	Cobalt	3.2	12	mg/kg	SED10	3/3	-	12	NA	2.3	n	70	CT RSR	YES	ASL
	7440-50-8	Copper	99.6	1300	mg/kg	SED10	3/3	-	1300	NA	313	n	2500	CT RSR	NO	See Text
	7439-89-6	Iron	9870	20000	mg/kg	SED10	3/3	-	20000	NA	5480	n	NA	CT RSR	YES	ASL
	7439-92-1	Lead	224	500	mg/kg	SED10	3/3	-	500	NA	400		400	CT RSR	YES	ASL
	7439-95-4	Magnesium	1950	3500	mg/kg	SED10	3/3	-	3500	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7439-96-5	Manganese	89.2	570	mg/kg	SED10	3/3	-	570	NA	183	n	1400	CT RSR	YES	ASL
	7439-97-6	Mercury	0.019	0.72	mg/kg	SED10	3/3	-	0.72	NA	0.56	n	20	CT RSR	YES	ASL
	7440-02-0	Nickel	16.9	83	mg/kg	SED10	3/3	-	83	NA	155	n	1400	CT RSR	NO	BSL
	7440-09-7	Potassium	935	1600	mg/kg	SED10	3/3	-	1600	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7782-49-2	Selenium	1.1	1.1	mg/kg	SD04	1/3	0.73-48	1.1	NA	39	n	340	CT RSR	NO	BSL
	7440-23-5	Sodium	600	600	mg/kg	SED10	1/3	117-122	600	NA	NA		NA	CT RSR	NO	Essential Nutrient
	7440-62-2	Vanadium	18.6	92	mg/kg	SED10	3/3	-	92	NA	0.55	n	470	CT RSR	YES	ASL
	7440-66-6	Zinc	308	1500	mg/kg	SED10	3/3	-	1500	NA	2350	n	20000	CT RSR	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based residential soil concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Endosulfan value used for Endosulfan II.
- Acenaphthene value used for acenaphthylene.
- Naphthene value used for benzo(g,h,i)perylene.
- Pyrene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.
NA = not available.
NC = noncancer based screening value set at a target hazard quotient of 0.1.

ASL = above screening level.
BSL = below screening level.
NBA = no screening benchmark available.

TABLE A-2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE
DRAFT REMEDIAL INVESTIGATION
WATERBURY, CONNECTICUT

Scenario Timeframe: Current
Medium: Surface Water
Exposure Medium: Surface water

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		COPC Flag (Y/N)	Rationale for Selection or Deletion
Surface water	67-64-1	Acetone	9.9	9.9	µg/L	SW2	1/1	-	9.9	NA	2180	n	NO	BSL
	100-52-7	Benzaldehyde	1	1	µg/L	SW2	1/1	-	1	NA	365	n	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	2	2	µg/L	SW2	1/1	-	2	NA	4.8	c	NO	BSL
	85-68-7	Butyl benzylphthalate	1	2	µg/L	SW2	1/1	-	2	NA	35	c	NO	BSL
	105-60-2	Caprolactam	2	2	µg/L	SW2	1/1	-	2	NA	1830	n	NO	BSL
	84-66-2	Diethyl phthalate	1	1	µg/L	SW2	1/1	-	1	NA	2920	n	NO	BSL
	84-74-2	Di-n-butylphthalate	1	1	µg/L	SW2	1/1	-	1	NA	365	n	NO	BSL
		PAHs												
	56-55-3	Benzo(a)anthracene	0.06	0.06	µg/L	SW2	1/1	-	0.06	NA	0.030	c	YES	ASL
	50-32-8	Benzo(a)pyrene	0.06	0.07	µg/L	SW2	1/1	-	0.07	NA	0.0030	c	YES	ASL
	205-99-2	Benzo(b)fluoranthene	0.1	0.11	µg/L	SW2	1/1	-	0.11	NA	0.030	c	YES	ASL
	191-24-2	Benzo(g,h,i)perylene	0.07	0.07	µg/L	SW2	1/1	-	0.07	NA	0.14	c	NO	BSL
	218-01-9	Chrysene	0.08	0.09	µg/L	SW2	1/1	-	0.09	NA	3.0	c	NO	BSL
	206-44-0	Fluoranthene	0.15	0.17	µg/L	SW2	1/1	-	0.17	NA	146	n	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	0.07	0.07	µg/L	SW2	1/1	-	0.07	NA	0.030	c	YES	ASL
	85-01-8	Phenanthrene	0.06	0.07	µg/L	SW2	1/1	-	0.07	NA	110	n	NO	BSL
	129-00-0	Pyrene	0.14	0.16	µg/L	SW2	1/1	-	0.16	NA	110	n	NO	BSL
		Metals												
	7429-90-5	Aluminum	591	643	µg/L	SW2	1/1	-	643	NA	3650	n	NO	BSL
	7440-38-2	Arsenic	1.2	1.41	µg/L	SW2	1/1	-	1.41	NA	0.045	c	YES	ASL
	7440-39-3	Barium	96.5	112	µg/L	SW2	1/1	-	112	NA	730	n	NO	BSL
	7440-43-9	Cadmium	1.83	2.34	µg/L	SW2	1/1	-	2.34	NA	1.8	n	YES	ASL
	7440-70-2	Calcium	27700	29000	µg/L	SW2	1/1	-	29000	NA	NA		NO	Essential Nutrient
	7440-47-3	Chromium Total	19.8	21.6	µg/L	SW2	1/1	-	21.6	NA	0.043	c	YES	ASL
	7440-48-4	Cobalt	2.7	3.1	µg/L	SW2	1/1	-	3.1	NA	1.1	n	YES	ASL
	7440-50-8	Copper	135	174	µg/L	SW2	1/1	-	174	NA	146	n	NO	See Text
	7439-89-6	Iron	42200	47100	µg/L	SW2	1/1	-	47100	NA	2560	n	YES	ASL
	7439-92-1	Lead	31	35.3	µg/L	SW2	1/1	-	35.3	NA	15		YES	ASL
	7439-95-4	Magnesium	4600	4700	µg/L	SW2	1/1	-	4700	NA	NA		NO	Essential Nutrient
	7439-96-5	Manganese	965	1020	µg/L	SW2	1/1	-	1020	NA	88	n	YES	ASL
	7439-97-6	Mercury	0.33	0.33	µg/L	SW2	1/1	-	0.33	NA	0.057	n	YES	ASL
	7440-02-0	Nickel	21.6	28	µg/L	SW2	1/1	-	28	NA	73	n	NO	BSL
	7440-62-2	Vanadium	22	26.2	µg/L	SW2	1/1	-	26.2	NA	0.26	n	YES	ASL
	7440-66-6	Zinc	320	410	µg/L	SW2	1/1	-	410	NA	1100	n	NO	BSL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based tap water concentrations obtained from the Regional Screening Level (RSL) Table (December, 2009).

Surrogate screening values used:

- Naphthene value used for benzo(g,h,i)perylene.
- Pyrene value used for phenanthrene.

C = cancer based screening value set at a target risk of 1E-06.

NA = not available.

NC = noncancer based screening value set at a target hazard quotient of 0.1.

TABLE A-2.5a
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - PARCEL A
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future Vapor Intrusion
Medium: Parcel A Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Groundwater	67-64-1	Acetone	34	51	µg/L	MW12S	2/30	5 - 47	51	NA	2166469	NC	50000	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.32	0.32	µg/L	MW5	1/16	4.7 - 6	0.32	NA	NA		NA	CT RSR	YES	NBA
	100-52-7	Benzaldehyde	0.86	0.86	µg/L	MW5	1/16	4.7 - 6	0.86	NA	NA		NA	CT RSR	YES	NBA
	71-43-2	Benzene	0.22	0.42	µg/L	OP2	6/30	0.5 - 5	0.42	NA	1.4	C	130	CT RSR	NO	BSL
	78-93-3	2-Butanone	24	24	µg/L	MW12S	1/30	5 - 10	24	NA	214943	NC	50000	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.28	0.61	µg/L	P1	10/30	0.5 - 5	0.61	NA	119	NC	NA	CT RSR	NO	BSL
	56-23-5	Carbon tetrachloride	0.1	0.18	µg/L	MW4	1/30	0.5 - 5	0.18	NA	0.36	C	5.3	CT RSR	NO	BSL
	108-90-7	Chlorobenzene	2.7	2.7	µg/L	MW8S	1/30	0.5 - 5	2.7	NA	39	NC	1800	CT RSR	NO	BSL
	67-66-3	Chloroform	0.4	32	µg/L	MW4D	8/30	0.5 - 5.7	32	NA	0.71	C	26	CT RSR	YES	ASL
	74-87-3	Chloromethane	0.28	0.83	µg/L	MW11D	4/30	0.5 - 5	0.83	NA	25	NC	390	CT RSR	NO	BSL
	95-57-8	2-Chlorophenol	0.47	0.47	µg/L	MW11D	1/16	4.7 - 6	0.47	NA	NA		NA	CT RSR	YES	NBA
	57-12-5	Cyanide (total)	1.5	8.7	µg/L	MW11S	8/16	10 - 10	8.7	NA	NA		NA	CT RSR	YES	NBA
	110-82-7	Cyclohexane	0.22	0.22	µg/L	P2	1/30	0.5 - 5	0.22	NA	98	NC	NA	CT RSR	NO	BSL
	132-64-9	Dibenzofuran	0.19	0.37	µg/L	MW11S	2/16	4.7 - 6	0.37	NA	NA		NA	CT RSR	YES	NBA
	95-50-1	1,2-Dichlorobenzene	0.24	0.24	µg/L	P2	1/30	0.5 - 5	0.24	NA	255	NC	5100	CT RSR	NO	BSL
	75-35-4	1,1-Dichloroethene	1.2	3.7	µg/L	MW12S	2/30	0.5 - 5	3.7	NA	19	NC	190	CT RSR	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	0.2	35	µg/L	P4	7/30	0.5 - 5	35	NA	NA		830	CT RSR	YES	NBA
	156-60-5	trans-1,2-Dichloroethene	0.36	0.83	µg/L	P4	3/30	0.5 - 5	0.83	NA	36	NC	1000	CT RSR	NO	BSL
	10061-01-5	cis-1,3-Dichloropropene	2.5	2.5	µg/L	MW9D	1/30	0.5 - 5	2.5	NA	4.2	C	11	CT RSR	NO	BSL
	100-41-4	Ethylbenzene	0.38	0.38	µg/L	P3	1/30	0.5 - 5	0.38	NA	3.0	C	2700	CT RSR	NO	BSL
	98-82-8	Isopropylbenzene	0.86	0.86	µg/L	P2	1/30	0.5 - 5	0.86	NA	85	NC	2800	CT RSR	NO	BSL
	79-20-9	Methyl acetate	2.8	2.8	µg/L	MW12S	1/30	0.5 - 5	2.8	NA	NA		NA	CT RSR	YES	NBA
	108-87-2	Methyl cyclohexane	0.24	0.24	µg/L	P2	1/30	0.5 - 5	0.24	NA	NA		NA	CT RSR	YES	NBA
	1634-04-4	MTBE	0.2	1.4	µg/L	MW12D	4/30	0.5 - 5	1.4	NA	390	C	21000	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.1	11	µg/L	MW6	4/16	0.05 - 5.2	11	NA	NA		NA	CT RSR	YES	NBA
	208-96-8	Acenaphthylene	0.1	0.1	µg/L	MW6	1/16	0.05 - 5.2	0.1	NA	NA		NA	CT RSR	YES	NBA
	120-12-7	Anthracene	0.19	0.19	µg/L	MW11S	1/16	4.7 - 6	0.19	NA	NA		NA	CT RSR	YES	NBA
	86-73-7	Fluorene	0.1	1.3	µg/L	MW6	3/16	0.05 - 5.2	1.3	NA	NA		NA	CT RSR	YES	NBA
	91-57-6	2-Methylnaphthalene	5	5	µg/L	MW6	1/16	0.05 - 5.2	5	NA	NA		NA	CT RSR	YES	NBA
	91-20-3	Naphthalene	0.05	2.1	µg/L	MW6	2/16	0.05 - 5.2	2.1	NA	4.0	C	NA	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.1	1.1	µg/L	MW11S	4/16	0.05 - 5.2	1.1	NA	NA		NA	CT RSR	YES	NBA
	129-00-0	Pyrene	0.1	0.35	µg/L	MW11S	2/16	0.05 - 5.2	0.35	NA	NA		NA	CT RSR	YES	NBA
	127-18-4	Tetrachloroethene	0.14	1.8	µg/L	MW9D	4/30	0.5 - 5	1.8	NA	0.57	C	340	CT RSR	YES	ASL
	108-88-3	Toluene	0.2	0.86	µg/L	OP9	6/30	0.5 - 5.8	0.86	NA	1842	NC	7100	CT RSR	NO	BSL

TABLE A-2.5a
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - PARCEL A
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future Vapor Intrusion
Medium: Parcel A Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
	79-01-6	Trichloroethene	0.2	12	µg/L	P4	4/30	0.5 - 5	12	NA	2.5	NC	27	CT RSR	YES	ASL
	95-63-6	1,2,4-Trimethylbenzene	0.3	0.3	µg/L	MW6	1/4	0.5 - 1	0.3	NA	2.8	NC	360	CT RSR	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	0.3	0.3	µg/L	MW6	1/4	0.5 - 1	0.3	NA	NA		280	CT RSR	YES	NBA
	75-01-4	Vinyl chloride	0.34	18	µg/L	P4	9/30	0.5 - 5	18	NA	0.15	C	1.6	CT RSR	YES	ASL
	108-38-3	m&p-Xylene	0.58	2.5	µg/L	P3	3/30	0.5 - 5	2.5	NA	238	NC	8700	CT RSR	NO	BSL
	95-47-6	o-Xylene	0.25	1.4	µg/L	MW12S	5/30	0.5 - 5	1.4	NA	331	NC	8700	CT RSR	NO	BSL
		Metals (Total)														
	7439-97-6	Mercury	0.073	0.17	µg/L	MW12S	4/16	0.2 - 0.2	0.17	NA	0.064	NC	NA	CT RSR	YES	ASL
		Metals (Dissolved)														
	7439-97-6	Mercury (Dissolved)	0.026	0.12	µg/L	MW12S	6/16	0.2 - 0.2	0.12	NA	0.064	NC	NA	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based target groundwater concentrations obtained from the Vapor Intrusion Guidance (November, 2002), Table 2c and adjusted to HI = 0.1 for non-cancer based values. See Appendix F for supporting documentation.

Those whose toxicity values have been updated since 2002 have been revised to reflect 2010 RSL toxicity values.

Those whose 2002 Vapor Intrusion Guidance values were based on MCLs have been replaced by inhalation risk-based values (EPA Region 1, March 11, 2010).

Note: Groundwater monitoring data were validated in accordance with EPA Tier II or higher validation levels. Groundwater profiling data were validated in accordance with EPA Tier I validation levels.

C = cancer based screening value set at a target risk of 1E-06.

NC = noncancer based screening value set at a target hazard quotient of 0.1.

NA = not available.

NE = not evaluated.

CT RSR= Connecticut Remediation Standard Regulations -groundwater volatilization criteria

ASL = above screening level.

BSL = below screening level.

NBA = no benchmark available.

TABLE A-2.5b
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - PARCEL B
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future Vapor Intrusion
Medium: Parcel B Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
Groundwater	67-64-1	Acetone	4.4	27	µg/L	P39	10/13	5 - 14	27	NA	2166469	NC	50000	CT RSR	NO	BSL
	98-86-2	Acetophenone	0.47	0.47	µg/L	MW3D	1/3	4.8 - 6	0.47	NA	NA		NA	CT RSR	YES	NBA
	100-52-7	Benzaldehyde	0.93	0.93	µg/L	MW3D	1/3	4.8 - 6	0.93	NA	NA		NA	CT RSR	YES	NBA
	78-93-3	2-Butanone	3.8	4.2	µg/L	P36	2/13	5 - 10	4.2	NA	214943	NC	50000	CT RSR	NO	BSL
	75-15-0	Carbon disulfide	0.46	4.1	µg/L	P21	9/13	0.5 - 5	4.1	NA	119	NC	NA	CT RSR	NO	BSL
	67-66-3	Chloroform	2.3	6	µg/L	MW3B	2/13	0.5 - 6	6	NA	0.71	C	26	CT RSR	YES	ASL
	74-87-3	Chloromethane	4.9	4.9	µg/L	P12	1/13	0.5 - 5	4.9	NA	25	NC	390	CT RSR	NO	BSL
	57-12-5	Cyanide (total)	4.3	31.9	µg/L	MW3	2/3	10 - 10	31.9	NA	NA		NA	CT RSR	YES	NBA
	132-64-9	Dibenzofuran	5	5	µg/L	MW3	1/3	4.8 - 6	5	NA	NA		NA	CT RSR	YES	NBA
	106-46-7	1,4-Dichlorobenzene	0.18	0.18	µg/L	P15	1/13	0.5 - 5	0.18	NA	2.2	C	1400	CT RSR	NO	BSL
	156-59-2	cis-1,2-Dichloroethene	0.2	1.2	µg/L	P21	8/13	0.5 - 5	1.2	NA	NA		830	CT RSR	YES	NBA
	156-60-5	trans-1,2-Dichloroethene	0.2	0.2	µg/L	P18	1/13	0.5 - 5	0.2	NA	36	NC	1000	CT RSR	NO	BSL
	100-41-4	Ethylbenzene	0.1	0.31	µg/L	P40	5/13	0.5 - 5	0.31	NA	3.0	C	2700	CT RSR	NO	BSL
	98-82-8	Isopropylbenzene	0.12	0.56	µg/L	P18	2/13	0.5 - 5	0.56	NA	85	NC	2800	CT RSR	NO	BSL
	75-09-2	Methylene chloride	0.2	1.7	µg/L	P39	8/13	0.5 - 5	1.7	NA	39	C	160	CT RSR	NO	BSL
	1634-04-4	MTBE	0.18	6	µg/L	MW3	4/13	5 - 5	6	NA	390	C	21000	CT RSR	NO	BSL
		PAHs														
	83-32-9	Acenaphthene	0.1	1.3	µg/L	MW3	1/3	0.06 - 5	1.3	NA	NA		NA	CT RSR	YES	NBA
	208-96-8	Acenaphthylene	0.08	0.08	µg/L	MW3	1/3	0.06 - 5	0.08	NA	NA		NA	CT RSR	YES	NBA
	120-12-7	Anthracene	0.3	0.3	µg/L	MW3	1/3	4.8 - 6	0.3	NA	NA		NA	CT RSR	YES	NBA
	86-73-7	Fluorene	0.23	0.5	µg/L	MW3	1/3	0.06 - 5	0.5	NA	NA		NA	CT RSR	YES	NBA
	91-57-6	2-Methylnaphthalene	0.2	0.2	µg/L	MW3	1/3	0.06 - 5	0.2	NA	NA		NA	CT RSR	YES	NBA
	91-20-3	Naphthalene	1	1	µg/L	MW3	1/3	0.06 - 5	1	NA	4.0	C	NA	CT RSR	NO	BSL
	85-01-8	Phenanthrene	0.4	0.4	µg/L	MW3	1/3	0.06 - 5	0.4	NA	NA		NA	CT RSR	YES	NBA
	129-00-0	Pyrene	0.1	0.1	µg/L	MW3	1/3	0.06 - 5	0.1	NA	NA		NA	CT RSR	YES	NBA
	127-18-4	Tetrachloroethene	0.1	0.52	µg/L	P39	2/13	0.5 - 5	0.52	NA	0.57	C	340	CT RSR	NO	BSL
	108-88-3	Toluene	0.14	0.65	µg/L	P36	10/13	0.5 - 5	0.65	NA	1842	NC	7100	CT RSR	NO	BSL
	120-82-1	1,2,4-Trichlorobenzene	0.87	0.87	µg/L	P12	1/13	0.5 - 5	0.87	NA	3.4	NC	NA	CT RSR	NO	BSL
	71-55-6	1,1,1-Trichloroethane	0.1	0.1	µg/L	MW3D	1/13	0.5 - 5	0.1	NA	711	NC	6500	CT RSR	NO	BSL
	79-01-6	Trichloroethene	0.15	0.74	µg/L	P39	6/13	0.5 - 5	0.74	NA	2.5	NC	27	CT RSR	NO	BSL
	95-63-6	1,2,4-Trimethylbenzene	0.3	0.3	µg/L	MW3	1/2	0.5 - 0.5	0.3	NA	2.8	NC	360	CT RSR	NO	BSL
	108-67-8	1,3,5-Trimethylbenzene	0.3	0.3	µg/L	MW3	1/2	0.5 - 0.5	0.3	NA	NA		280	CT RSR	YES	NBA
	75-01-4	Vinyl chloride	0.5	3.7	µg/L	P40	6/13	0.5 - 5	3.7	NA	0.15	C	1.6	CT RSR	YES	ASL
	108-38-3	m&p-Xylene	0.1	0.9	µg/L	P36	9/13	5 - 5	0.9	NA	238	NC	8700	CT RSR	NO	BSL
	95-47-6	o-Xylene	0.1	0.76	µg/L	P40	4/13	5 - 5	0.76	NA	331	NC	8700	CT RSR	NO	BSL
	1330-20-7	Xylene (total)	0.6	0.6	µg/L	MW3	1/2	1 - 1	0.6	NA	47	NC	8700	CT RSR	NO	BSL

TABLE A-2.5b
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN
SCOVILL INDUSTRIAL LANDFILL SITE - PARCEL B
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future Vapor Intrusion
Medium: Parcel B Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Contaminant	Minimum Concentration	Maximum Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value	Screening Toxicity Value (N/C) (2)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion
		Metals (Total)													
	7439-97-6	Mercury	0.083	0.088	µg/L	MW3	2/3	0.2 - 0.2	0.088	NA	0.064 NC	NA	CT RSR	YES	ASL

Notes/sources:

(1) Maximum detected concentration used for screening.

(2) Risk-based target groundwater concentrations obtained from the Vapor Intrusion Guidance (November, 2002), Table 2c and adjusted to HI = 0.1 for non-cancer based values. See Appendix F for supporting documentation.

Those whose toxicity values have been updated since 2002 have been revised to reflect 2010 RSL toxicity values.

Those whose 2002 Vapor Intrusion Guidance values were based on MCLs have been replaced by inhalation risk-based values (EPA Region 1, March 11, 2010).

Note: Groundwater monitoring data were validated in accordance with EPA Tier II or higher validation levels. Groundwater profiling data were validated in accordance with EPA Tier I validation levels.

C = cancer based screening value set at a target risk of 1E-06.

NC = noncancer based screening value set at a target hazard quotient of 0.1.

NA = not available.

NE = not evaluated.

CT RSR= Connecticut Remediation Standard Regulations -groundwater volatilization criteria

ASL = above screening level.

BSL = below screening level.

NBA = no benchmark available.

TABLE A-3.1d1
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area D1 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Dimethyl phthalate	mg/kg	0.45	Not Determined	0.38	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	PAHs								
	Benzo(a)anthracene	mg/kg	0.40	0.793 (L)	1.8	0.79	mg/kg	95% H-UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.43	0.917 (L)	2.1	0.92	mg/kg	95% H-UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.58	1.23 (L)	2.7	1.23	mg/kg	95% H-UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.46	1.003 (L)	1.9	1.0	mg/kg	95% H-UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.28	0.222 (N)	0.42	0.22	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.17	0.326 (ND)	0.53	0.33	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.31	0.904 (ND)	1.7	0.90	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	9037	9797 (N)	10900	9797	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	3.51	4.219 (N)	6.7	4.22	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Chromium Total	mg/kg	13.3	15.16 (N)	19.5	15.2	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.68	6.251 (N)	8.5	6.25	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	13567	14725 (N)	17500	14725	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Manganese	mg/kg	283	321.3 (N)	445	321	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.42	0.525 (ND)	1.3	0.53	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Thallium	mg/kg	1.51	Not Determined	1.0	1.0	mg/kg	Maximum	See footnote.
	Vanadium	mg/kg	24.1	26.35 (N)	32.1	26.4	mg/kg	95% Student's-t UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.2d1
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area D1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	Dimethyl phthalate	mg/kg	0.81	Not Determined	0.38	0.37	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Di-n-octyl phthalate	mg/kg	0.34	Not Determined	0.071	0.071	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.31	0.557 (L)	1.8	0.56	mg/kg	95% H-UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.33	0.875 (L)	2.1	0.88	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.44	1.13 (L)	2.7	1.13	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.35	0.872 (L)	1.9	0.87	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.69	0.16 (ND)	0.42	0.16	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.61	0.175 (L)	0.53	0.18	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.68	0.709 (ND)	1.7	0.71	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	PCBs								
	Aroclor-1254	mg/kg	0.050	Not Determined	0.24	0.038	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Metals								
	Aluminum	mg/kg	8928	10073 (G)	17100	10073	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Arsenic	mg/kg	3.22	3.776 (N)	6.7	3.78	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Chromium Total	mg/kg	12.9	14.73 (N)	21.4	14.7	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.45	5.989 (N)	8.5	5.99	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	13028	14222 (N)	17500	14222	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Manganese	mg/kg	253	285.9 (N)	445	286	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.30	0.72 (ND)	1.3	0.72	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	Nickel	mg/kg	20.2	38.27 (ND)	176	38.3	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Thallium	mg/kg	1.79	Not Determined	1.8	1.35	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Vanadium	mg/kg	71.4	281.1 (ND)	937	281	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1d3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area D3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	PAHs								
	Benzo(a)anthracene	mg/kg	1.85	Not Determined	3.8	3.8	mg/kg	Maximum	See footnote.
	Benzo(a)pyrene	mg/kg	2.09	Not Determined	3.8	3.8	mg/kg	Maximum	See footnote.
	Benzo(b)fluoranthene	mg/kg	2.93	Not Determined	5.6	5.6	mg/kg	Maximum	See footnote.
	Benzo(k)fluoranthene	mg/kg	1.96	Not Determined	3.6	3.6	mg/kg	Maximum	See footnote.
	Carbazole	mg/kg	0.13	Not Determined	0.19	0.19	mg/kg	Maximum	See footnote.
	Dibenz(a,h)anthracene	mg/kg	0.23	Not Determined	0.31	0.31	mg/kg	Maximum	See footnote.
	Indeno(1,2,3-cd)pyrene	mg/kg	0.54	Not Determined	0.86	0.86	mg/kg	Maximum	See footnote.
	Metals								
	Aluminum	mg/kg	8023	Not Determined	10400	10400	mg/kg	Maximum	See footnote.
	Arsenic	mg/kg	4.35	Not Determined	11.8	11.8	mg/kg	Maximum	See footnote.
	Chromium Total	mg/kg	13.9	Not Determined	29.5	29.5	mg/kg	Maximum	See footnote.
	Cobalt	mg/kg	4.21	Not Determined	5.3	5.3	mg/kg	Maximum	See footnote.
	Iron	mg/Kg	10540	Not Determined	13000	13000	mg/Kg	Maximum	See footnote.
	Lead	mg/kg	153	Not Determined	536	536	mg/kg	Maximum	See footnote.
	Manganese	mg/Kg	168	Not Determined	202	202	mg/Kg	Maximum	See footnote.
	Vanadium	mg/kg	24.6	Not Determined	53.6	53.6	mg/kg	Maximum	See footnote.

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

TABLE A-3.2d3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area D3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	PAHs								
	Benzo(a)anthracene	mg/kg	1.96	3.055 (N)	4.4	3.06	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	2.15	3.399 (N)	4.7	3.40	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	3.11	4.954 (N)	7.6	4.95	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Benzo(g,h,i)perylene	mg/kg	0.81	2.79 (G)	3.9	2.79	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	1.63	2.218 (N)	3.6	2.22	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.18	0.199 (N)	0.32	0.20	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.35	1.15 (G)	1.6	1.15	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.77	2.371 (G)	3.2	2.37	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	7065	8965 (N)	10400	8965	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	5.14	7.525 (N)	12	7.53	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Chromium Total	mg/kg	11.0	16.74 (G)	29.5	16.7	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Cobalt	mg/kg	4.72	5.428 (ND)	6.1	5.43	mg/kg	95% Modified-t UCL	ProUCL Recommendation
	Iron	mg/Kg	10620	Not Determined	13300	13300	mg/Kg	Maximum	See footnote.
	Lead	mg/kg	110	255.2 (G)	536	255	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Manganese	mg/Kg	173	Not Determined	240	240	mg/Kg	Maximum	See footnote.
	Vanadium	mg/kg	22.4	32.27 (G)	53.6	32.3	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1e1
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E1 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Di-n-octyl phthalate	mg/kg	0.36	Not Determined	0.12	0.12	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.41	1.822 (ND)	3.3	1.82	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.36	1.498 (ND)	2.7	1.50	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.37	1.039 (ND)	2.3	1.04	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.37	Not Determined	0.99	0.37	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Dibenz(a,h)anthracene	mg/kg	0.25	0.175 (L)	0.32	0.18	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.25	0.852 (ND)	1.4	0.85	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	PCBs								
	Aroclor-1254	mg/kg	0.049	0.0663 (N)	0.14	0.066	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	6919	7990 (N)	12100	7990	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	2.78	3.499 (G)	7	3.50	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Chromium Total	mg/kg	13.7	16.92 (N)	31.1	16.9	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	4.20	4.736 (N)	6.7	4.74	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	10668	11785 (N)	14800	11785	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Manganese	mg/kg	236	266 (ND)	308	266	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Vanadium	mg/kg	27.6	36.41 (G)	72	36.4	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
N = Normal distribution.
L = Lognormal distribution.
ND = Data distribution is not discernable.

TABLE A-3.2e1
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E1 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	bis(2-Chloroethyl)ether	mg/kg	0.50	Not Determined	1.8	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	4-Bromophenyl phenyl ether	mg/kg	0.45	Not Determined	0.81	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	4-Chlorophenyl phenyl ether	mg/kg	0.44	Not Determined	0.63	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Di-n-octyl phthalate	mg/kg	0.47	Not Determined	1.4	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Dioxins/Furans								
	2,3,7,8-TCDD TEQ	mg/kg	0.000010	Not Determined	0.0000114	0.000011	mg/kg	Maximum	See footnote.
	Hexachlorobenzene	mg/kg	0.44	Not Determined	0.63	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	N-Nitrosodi-n-propylamine	mg/kg	0.46	Not Determined	1	0.38	mg/kg	Median	At least 8 samples but less than 4 detected samples
	PAHs								
	Benzo(a)anthracene	mg/kg	1.11	5.492 (ND)	7.2	5.49	mg/kg	99% KM (chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.94	4.812 (ND)	7.3	4.81	mg/kg	99% KM (chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	1.32	7.121 (ND)	11	7.12	mg/kg	99% KM (chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.79	2.793 (ND)	6.3	2.79	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.54	0.547 (N)	1.6	0.55	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.36	0.211 (L)	0.60	0.21	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.36	1.069 (ND)	2.1	1.07	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	PCBs								
	Aroclor-1254	mg/kg	0.061	0.0914 (L)	0.37	0.091	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Aroclor-1260	mg/kg	0.073	0.134 (N)	0.49	0.13	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Vinyl chloride	mg/kg	0.055	Not Determined	0.12	0.011	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Metals								
	Aluminum	mg/kg	7482	8395 (N)	13100	8395	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	2.84	3.336 (G)	7	3.34	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Chromium Total	mg/kg	14.9	18.04 (G)	38.5	18.0	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Cobalt	mg/kg	4.84	5.54 (G)	10	5.54	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Iron	mg/kg	12079	13524 (N)	23400	13524	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Manganese	mg/kg	238	260.9 (N)	346	261	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.51	0.553 (ND)	3.3	0.55	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Vanadium	mg/kg	72.8	227.6 (ND)	774	228	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1e2
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E2 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Di-n-octyl phthalate	mg/kg	0.30	Not Determined	0.028	0.028	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.56	0.976 (G)	1.8	0.98	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.57	0.823 (N)	1.5	0.82	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.81	1.49 (G)	2.7	1.49	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.20	0.184 (L)	0.39	0.18	mg/kg	95% KM (% Bootstrap) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.18	0.177 (N)	0.24	0.18	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.42	0.79 (G)	1.6	0.79	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	7134	7963 (N)	9430	7963	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Antimony	mg/kg	3.09	Not Determined	4.8	0.86	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Arsenic	mg/kg	2.29	2.83 (N)	3.6	2.83	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	12.1	13.08 (N)	14.7	13.1	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	4.50	5.223 (N)	6.3	5.22	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	11482	12815 (N)	14800	12815	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Manganese	mg/kg	176	197.1 (N)	227	197	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Vanadium	mg/kg	24.9	29.8 (N)	38.1	29.8	mg/kg	95% Student's-t UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.

TABLE A-3.2e2
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E2 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	Di-n-octyl phthalate	mg/kg	0.29	Not Determined	0.028	0.028	mg/kg	Maximum	See footnote.
	Dioxins/Furans								
	2,3,7,8-TCDD TEQ	mg/kg	0.0000057	Not Determined	0.0000057	0.0000057	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.73	1.768 (G)	2.9	1.77	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.77	1.9 (G)	3.3	1.90	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	1.03	2.52 (G)	4	2.52	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.69	0.971 (N)	2.2	0.97	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.22	0.215 (L)	0.44	0.22	mg/kg	95% KM (% Bootstrap) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.18	0.169 (N)	0.24	0.17	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.41	0.942 (G)	1.6	0.94	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	6776	7751 (N)	9430	7751	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Antimony	mg/kg	3.09	Not Determined	4.8	0.86	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Arsenic	mg/kg	3.14	4.242 (G)	8.1	4.24	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Cadmium	mg/kg	2.36	9.579 (L)	13	9.58	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	11.7	13.06 (N)	14.7	13.1	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	4.41	5.021 (N)	6.3	5.02	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	10678	12407 (N)	14800	12407	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Lead	mg/kg	125	374.8 (ND)	749	375	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Manganese	mg/kg	166	191.5 (N)	227	191.5	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Vanadium	mg/kg	23.6	27.9 (N)	38.1	27.9	mg/kg	95% Student's-t UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1e3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area E3 Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Di-n-octyl phthalate	mg/kg	0.38	Not Determined	0.23	0.23	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.70	1.837 (G)	3.4	1.84	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.54	1.397 (G)	2.6	1.40	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.70	1.635 (G)	2.8	1.64	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.48	1.104 (G)	1.9	1.10	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.35	0.407 (G)	1.1	0.41	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.25	0.257 (G)	0.66	0.26	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.41	0.97 (G)	1.7	0.97	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	9273	10402 (N)	12000	10402	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	3.58	4.414 (N)	6.2	4.41	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Chromium Total	mg/kg	18.7	20.34 (N)	23	20.3	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	6.44	6.941 (N)	8.3	6.94	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	13936	15496 (G)	16100	15496	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Manganese	mg/kg	280	315.4 (N)	366	315	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.87	1.455 (N)	2.4	1.46	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Thallium	mg/kg	1.31	Not Determined	1.6	1.30	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Vanadium	mg/kg	34.2	39.41 (N)	51.6	39.4	mg/kg	95% Student's-t UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.

TABLE A-3.2e3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area E3 Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	Di-n-octyl phthalate	mg/kg	0.33	Not Determined	0.23	0.23	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.59	1.407 (G)	3.4	1.41	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.47	1.085 (G)	2.6	1.09	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.61	1.281 (G)	2.8	1.28	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.44	0.884 (G)	1.9	0.88	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.27	0.294 (G)	1.1	0.29	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.21	0.198 (G)	0.66	0.20	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.33	0.737 (G)	1.7	0.74	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	8482	9551 (N)	12000	9551	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Antimony	mg/kg	1.09	Not Determined	7.6	0.50	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Arsenic	mg/kg	4.21	5.031 (N)	8.1	5.03	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Chromium Total	mg/kg	22.9	49.4 (ND)	125	49.4	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Cobalt	mg/kg	6.11	6.586 (N)	8.3	6.59	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	12876	14275 (N)	17200	14275	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Lead	mg/kg	137	465.6 (ND)	1410	466	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Manganese	mg/kg	255	293.9 (N)	432	294	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.68	0.79 (N)	2.4	0.79	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Thallium	mg/kg	1.70	Not Determined	1.6	1.30	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Vanadium	mg/kg	30.2	34.53 (N)	51.6	34.5	mg/kg	95% Student's-t UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1f
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area F Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Dieldrin	mg/kg	0.0073	0.0105 (G)	0.044	0.011	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Di-n-octyl phthalate	mg/kg	0.48	Not Determined	1.2	0.39	mg/kg	Median	At least 8 samples but less than 4 detected samples
	PAHs								
	Benzo(a)anthracene	mg/kg	0.89	1.865 (G)	4.3	1.87	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.74	1.049 (G)	4.1	1.05	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	1.0	2.105 (G)	5.1	2.11	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.91	2.04 (G)	4.4	2.04	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.28	0.287 (G)	0.92	0.29	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.29	0.351 (L)	1.4	0.35	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.55	0.772 (G)	2.9	0.77	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	8447	10060 (G)	16400	10060	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Arsenic	mg/kg	6.34	7.6 (N)	16	7.60	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Cadmium	mg/kg	3.10	6.307 (G)	11	6.31	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	16.1	18.35 (N)	29	18.4	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.75	6.33 (G)	10	6.33	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Iron	mg/kg	12779	14029 (N)	20300	14029	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Lead	mg/kg	145	220.1 (G)	758	220	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Manganese	mg/kg	255	292.3 (N)	438	292	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.41	0.391 (N)	1.2	0.39	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Thallium	mg/kg	1.35	Not Determined	1.7	1.30	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Vanadium	mg/kg	43.3	85.43 (ND)	218	85.4	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Zinc	mg/kg	1024	1757 (G)	8440	1757	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.2f
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area F Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	Dieldrin	mg/kg	0.0064	0.00774 (G)	0.044	0.00774	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Di-n-octyl phthalate	mg/kg	0.55	Not Determined	1.2	0.39	mg/kg	Median	At least 8 samples but less than 4 detected samples
	PAHs								
	Benzo(a)anthracene	mg/kg	0.80	1.609 (G)	4.3	1.61	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.67	1.34 (G)	4.1	1.34	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.89	1.817 (G)	5.1	1.82	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.81	1.747 (G)	4.4	1.75	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.28	0.272 (G)	0.92	0.27	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.36	0.325 (L)	1.4	0.33	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.53	0.717 (G)	2.9	0.72	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	8051	9338 (G)	16400	9338	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Arsenic	mg/kg	6.11	7.303 (N)	16	7.30	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Cadmium	mg/kg	3.20	6.28 (G)	15	6.28	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	32.2	106.3 (ND)	507	106	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.88	6.372 (N)	10	6.37	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	13358	15183 (G)	37800	15183	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Lead	mg/kg	150	223.1 (G)	787	223	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Manganese	mg/kg	259	303.8 (G)	627	304	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Mercury	mg/kg	0.38	0.37 (G)	1.2	0.37	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Thallium	mg/kg	2.39	Not Determined	2.6	1.30	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Vanadium	mg/kg	41.0	74.93 (ND)	218	74.9	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Zinc	mg/kg	997	1600 (G)	8440	1600	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1g
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area G Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	PAHs								
	Benzo(a)anthracene	mg/kg	0.67	Not Determined	0.81	0.81	mg/kg	Maximum	See footnote.
	Benzo(a)pyrene	mg/kg	0.71	Not Determined	0.92	0.92	mg/kg	Maximum	See footnote.
	Benzo(b)fluoranthene	mg/kg	0.80	Not Determined	0.93	0.93	mg/kg	Maximum	See footnote.
	Carbazole	mg/kg	0.42	Not Determined	0.13	0.13	mg/kg	Maximum	See footnote.
	Dibenz(a,h)anthracene	mg/kg	0.18	Not Determined	0.25	0.25	mg/kg	Maximum	See footnote.
	Indeno(1,2,3-cd)pyrene	mg/kg	0.40	Not Determined	0.57	0.57	mg/kg	Maximum	See footnote.
	Metals								
	Aluminum	mg/kg	8408	Not Determined	10800	10800	mg/kg	Maximum	See footnote.
	Antimony	mg/kg	20.7	Not Determined	41	41	mg/kg	Maximum	See footnote.
	Arsenic	mg/kg	8.95	Not Determined	21	21	mg/kg	Maximum	See footnote.
	Cadmium	mg/kg	13.1	Not Determined	23	23	mg/kg	Maximum	See footnote.
	Chromium Total	mg/kg	27.5	Not Determined	66	66.30	mg/kg	Maximum	See footnote.
	Cobalt	mg/kg	9.35	Not Determined	14	14	mg/kg	Maximum	See footnote.
	Iron	mg/kg	13400	Not Determined	13400	13400	mg/kg	Maximum	See footnote.
	Lead	mg/kg	893	Not Determined	2960	2960	mg/kg	Maximum	See footnote.
	Manganese	mg/kg	214	Not Determined	214	214	mg/kg	Maximum	See footnote.
	Mercury	mg/kg	0.88	Not Determined	1.2	1.2	mg/kg	Maximum	See footnote.
	Nickel	mg/kg	130	Not Determined	430	430	mg/kg	Maximum	See footnote.
	Thallium	mg/kg	22.3	Not Determined	1.6	1.6	mg/kg	Maximum	See footnote.
	Vanadium	mg/kg	30.3	Not Determined	54.3	54.3	mg/kg	Maximum	See footnote.
	Zinc	mg/kg	5555	Not Determined	13700	13700	mg/kg	Maximum	See footnote.

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

TABLE A-3.2g
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area G Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	PAHs								
	Benzo(a)anthracene	mg/kg	0.50	0.655 (N)	0.81	0.66	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.51	0.7 (N)	0.92	0.70	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.85	0.968 (N)	1.1	0.97	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.46	0.11 (N)	0.13	0.11	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.33	0.195 (N)	0.25	0.20	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.25	0.38 (N)	0.57	0.38	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	6690	8759 (N)	10800	8759	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Antimony	mg/kg	10.6	Not Determined	41	40.7	mg/kg	Maximum	See footnote.
	Arsenic	mg/kg	7.88	13.1 (G)	21	13.1	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Cadmium	mg/kg	22.1	36.04 (N)	60	36.0	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	21.1	39.24 (G)	66	39.2	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Cobalt	mg/kg	7.39	9.652 (N)	14	9.65	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	14118	Not Determined	19500	19500	mg/kg	Maximum	See footnote.
	Lead	mg/kg	775	2321 (G)	2960	2321	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Manganese	mg/kg	207	Not Determined	282	282	mg/kg	Maximum	See footnote.
	Mercury	mg/kg	0.89	2.043 (G)	2.9	2.04	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Nickel	mg/kg	98.2	259.5 (G)	430	260	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Thallium	mg/kg	15.3	Not Determined	1.6	1.60	mg/kg	Maximum	See footnote.
	Vanadium	mg/kg	25.3	34.9 (N)	54.3	34.9	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Zinc	mg/kg	8334	14427 (N)	22800	14427	mg/kg	95% Student's-t UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
N = Normal distribution.

TABLE A-3.1h
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area H Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Dimethyl phthalate	mg/kg	0.72	Not Determined	0.022	0.022	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	1.10	2.805 (G)	4.0	2.81	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	1.19	3.016 (G)	4.3	3.02	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	1.45	3.333 (G)	5.0	3.33	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	1.33	3.493 (G)	4.9	3.49	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.41	0.663 (G)	0.79	0.66	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.51	0.976 (G)	1.2	0.98	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.91	2.369 (G)	3.8	2.37	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	6462	8227 (N)	11100	8227	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	3.47	3.802 (N)	6.2	3.80	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	12.6	15.72 (N)	20.6	15.7	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	4.79	5.496 (ND)	5.8	5.50	mg/kg	95% Modified-t UCL	ProUCL Recommendation
	Iron	mg/kg	9962	12777 (N)	13800	12777	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Manganese	mg/kg	225	309.2 (N)	464	309	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Thallium	mg/kg	6.33	1.433 (N)	1.7	1.43	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Vanadium	mg/kg	32.3	46.21 (G)	84	46.2	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.2h
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area H Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	Dimethyl phthalate	mg/kg	1.15	Not Determined	0.022	0.022	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	2.35	5.21 (G)	11	5.21	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	2.45	5.397 (G)	11	5.40	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	2.93	6.145 (G)	12	6.15	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Benzo(g,h,i)perylene	mg/kg	1.25	3.157 (G)	5.7	3.16	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	2.48	6.494 (G)	11	6.49	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.54	0.979 (G)	1.5	0.98	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.70	1.46 (G)	2.7	1.46	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	1.29	2.684 (G)	5.7	2.68	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Tetrachloroethene	mg/kg	0.095	Not Determined	1.0	0.0010	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Trichloroethene	mg/kg	1.92	Not Determined	21	0.0020	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Metals								
	Aluminum	mg/kg	6533	7735 (N)	11100	7735	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	6.38	13.95 (G)	23	14.0	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Barium	mg/kg	436	1928 (ND)	5200	1928	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Cadmium	mg/kg	3.21	4.872 (G)	18	4.87	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	14.3	17.29 (N)	27.2	17.3	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.66	6.58 (N)	11	6.58	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	10144	15909 (ND)	13800	13800	mg/kg	Maximum	See footnote.
	Lead	mg/kg	400	3652 (L)	4970	3652	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Manganese	mg/kg	209	287.8 (N)	464	288	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Thallium	mg/kg	13.4	1.475 (N)	1.7	1.48	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Vanadium	mg/kg	39.6	53.2 (G)	102	53.2	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Zinc	mg/kg	1253	8816 (L)	11400	8816	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1i
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area I Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Di-n-octyl phthalate	mg/kg	1.07	Not Determined	0.12	0.12	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	1.95	Not Determined	4.4	4.4	mg/kg	Maximum	See footnote.
	Benzo(a)pyrene	mg/kg	1.99	Not Determined	4.3	4.3	mg/kg	Maximum	See footnote.
	Benzo(b)fluoranthene	mg/kg	3.27	Not Determined	7.3	7.3	mg/kg	Maximum	See footnote.
	Benzo(k)fluoranthene	mg/kg	1.85	Not Determined	2.3	2.3	mg/kg	Maximum	See footnote.
	Carbazole	mg/kg	0.34	Not Determined	0.81	0.81	mg/kg	Maximum	See footnote.
	Dibenz(a,h)anthracene	mg/kg	0.33	Not Determined	0.56	0.56	mg/kg	Maximum	See footnote.
	Indeno(1,2,3-cd)pyrene	mg/kg	0.81	Not Determined	1.1	1.1	mg/kg	Maximum	See footnote.
	Metals								
	Aluminum	mg/kg	7143	Not Determined	9570	9570	mg/kg	Maximum	See footnote.
	Arsenic	mg/kg	2.70	Not Determined	5.4	5.4	mg/kg	Maximum	See footnote.
	Cadmium	mg/kg	9.67	Not Determined	28	28	mg/kg	Maximum	See footnote.
	Chromium Total	mg/kg	14.4	Not Determined	16.5	16.5	mg/kg	Maximum	See footnote.
	Cobalt	mg/kg	4.93	Not Determined	7.3	7.3	mg/kg	Maximum	See footnote.
	Iron	mg/kg	9045	Not Determined	9140	9140	mg/kg	Maximum	See footnote.
	Mercury	mg/kg	0.61	Not Determined	1.2	1.2	mg/kg	Maximum	See footnote.
	Thallium	mg/kg	9.60	Not Determined	1.5	1.5	mg/kg	Maximum	See footnote.
	Vanadium	mg/kg	27.6	Not Determined	40.4	40.4	mg/kg	Maximum	See footnote.

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

TABLE A-3.2i
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area I Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	Benzene	mg/kg	0.27	Not Determined	2.1	0.0050	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Dibenzofuran	mg/kg	1.54	13.08 (ND)	15	13.1	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Di-n-octyl phthalate	mg/kg	6.89	Not Determined	0.31	0.31	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	5.49	53.11 (L)	58	53.1	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	4.74	45.18 (L)	53	45.2	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	4.35	18.67 (G)	43	18.7	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(g,h,i)perylene	mg/kg	3.30	30.56 (L)	35	30.6	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	4.77	12.29 (G)	51	12.3	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Carbazole	mg/kg	1.82	15.87 (L)	17	15.9	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Chrysene	mg/kg	6.12	58.56 (L)	69	58.6	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	1.41	11.25 (L)	13	11.25	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	3.99	37.99 (L)	41	38.0	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Naphthalene	mg/kg	1.98	Not Determined	24	0.3	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Metals								
	Aluminum	mg/kg	5488	6732 (N)	9570	6732	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Arsenic	mg/kg	6.89	9.933 (N)	22	9.9	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cadmium	mg/kg	4.07	14.23 (G)	28	14.2	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	9.86	12.04 (N)	16.5	12.0	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.40	6.613 (N)	11	6.61	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	9602	11907 (N)	15400	11907	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Lead	mg/kg	156	348.3 (G)	1020	348	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Manganese	mg/kg	138	191.3 (N)	336	191	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.26	0.443 (G)	1.2	0.44	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Silver	mg/kg	8.60	84.87 (ND)	93	84.9	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Thallium	mg/kg	5.41	1.198 (N)	1.5	1.20	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Vanadium	mg/kg	31.8	82.46 (ND)	157	82.5	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Zinc	mg/kg	565	1274 (G)	3240	1274	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.1j
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Risk Area J Soil
Exposure Medium: Surface soil 0-2 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface soil	Dimethyl phthalate	mg/kg	0.36	Not Determined	0.14	0.14	mg/kg	Maximum	See footnote.
	Di-n-octyl phthalate	mg/kg	0.33	0.179 (G)	0.69	0.18	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	PAHs								
	Benzo(a)anthracene	mg/kg	0.91	2.22 (G)	6.2	2.22	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.74	1.568 (G)	3.9	1.57	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.91	1.834 (G)	3.7	1.83	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.70	1.383 (G)	3	1.38	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.37	0.445 (G)	2	0.45	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.29	0.496 (G)	1.2	0.50	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.54	1.1 (G)	2.6	1.10	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	PCBs								
	Aroclor-1254	mg/kg	1.04	11.5 (L)	19	11.5	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Aroclor-1260	mg/kg	0.11	0.608 (L)	1.4	0.61	mg/kg	97.5% KM (Chebyshev) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	8134	9066 (N)	14000	9066	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Antimony	mg/kg	4.16	Not Determined	3.6	0.89	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Arsenic	mg/kg	3.72	4.806 (N)	10	4.81	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Cadmium	mg/kg	2.10	3.488 (G)	13	3.49	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	1690	13941 (ND)	19200	13941	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Cobalt	mg/kg	5.97	6.431 (G)	12	6.43	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Iron	mg/kg	12182	13130 (N)	20376	13130	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Lead	mg/kg	168	413.1 (G)	746	413	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Manganese	mg/kg	255	285.4 (N)	353	285	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.24	0.173 (N)	0.59	0.17	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Nickel	mg/kg	292	1896 (ND)	2460	1896	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Thallium	mg/kg	4.44	Not Determined	1.8	1.30	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Vanadium	mg/kg	105	249.1 (L)	474	249	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Zinc	mg/kg	2136	14334 (L)	18400	14334	mg/kg	99% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.2j
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Medium: Risk Area J Aggregate Soil
Exposure Medium: Aggregate soil 0-10 ft bgs

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Aggregate soil	n-Butylbenzene	mg/kg	0.0021	Not Determined	0.017	0.0010	mg/kg	Median	At least 8 samples but less than 4 detected samples
	sec-Butylbenzene	mg/kg	0.0019	Not Determined	0.013	0.0010	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Cymene	mg/kg	0.0027	Not Determined	0.015	0.0010	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Dieldrin	mg/kg	0.010	0.0163 (L)	0.13	0.016	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Dimethyl phthalate	mg/kg	0.60	Not Determined	0.14	0.14	mg/kg	Maximum	See footnote.
	Di-n-octyl phthalate	mg/kg	0.57	0.147 (G)	0.69	0.15	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Dioxins/Furans								
	2,3,7,8-TCDD TEQ	mg/kg	0.000027	Not Determined	0.000033	0.000033	mg/kg	Maximum	See footnote.
	PAHs								
	Benzo(a)anthracene	mg/kg	0.80	1.545 (G)	6.2	1.55	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(a)pyrene	mg/kg	0.73	1.226 (G)	3.9	1.23	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(b)fluoranthene	mg/kg	0.87	1.425 (G)	3.7	1.43	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Benzo(k)fluoranthene	mg/kg	0.70	1.069 (G)	3	1.07	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Carbazole	mg/kg	0.51	0.31 (G)	2	0.31	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Dibenz(a,h)anthracene	mg/kg	0.42	0.283 (G)	1.2	0.28	mg/kg	95% KM (Percentile Bootstrap) UCL	ProUCL Recommendation
	Indeno(1,2,3-cd)pyrene	mg/kg	0.59	0.999 (G)	2.6	1.0	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	PCBs								
	Aroclor-1254	mg/kg	0.58	2.299 (L)	19	2.30	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Aroclor-1260	mg/kg	0.22	0.267 (G)	1.8	0.27	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Metals								
	Aluminum	mg/kg	8308	8980 (N)	15500	8980	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Antimony	mg/kg	3.73	Not Determined	3.6	0.96	mg/kg	Median	At least 8 samples but less than 4 detected samples
	Arsenic	mg/kg	3.88	4.697 (G)	17	4.70	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Cadmium	mg/kg	2.13	3.492 (G)	13	3.49	mg/kg	95% KM (Chebyshev) UCL	ProUCL Recommendation
	Chromium Total	mg/kg	937	3823 (ND)	19200	3823	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Cobalt	mg/kg	6.29	6.74 (N)	12	6.74	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Iron	mg/kg	13251	14659 (G)	29200	14659	mg/kg	95% Approximate Gamma UCL	ProUCL Recommendation
	Lead	mg/kg	132	479.4 (L)	746	479	mg/kg	99% KM (Chebyshev) UCL	ProUCL Recommendation
	Manganese	mg/kg	243	268.2 (N)	442	268	mg/kg	95% Student's-t UCL	ProUCL Recommendation
	Mercury	mg/kg	0.32	0.552 (ND)	4.9	0.55	mg/kg	95% KM (BCA) UCL	ProUCL Recommendation
	Nickel	mg/kg	173	555.2 (ND)	2460	555	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation
	Thallium	mg/kg	5.86	1.108 (N)	2	1.11	mg/kg	95% KM (t) UCL	ProUCL Recommendation
	Vanadium	mg/kg	106	160.2 (L)	474	160	mg/kg	95% H-UCL	ProUCL Recommendation
	Zinc	mg/kg	1392	4295 (L)	18400	4295	mg/kg	95% Chebyshev (Mean, Sd) UCL	ProUCL Recommendation

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

G = Gamma distribution.
L = Lognormal distribution.
N = Normal distribution.
ND = Data distribution is not discernable.

TABLE A-3.3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - PARCEL B
WATERBURY, CONNECTICUT

Scenario Timeframe: Current
Medium: Parcel B Sediment
Exposure Medium: Surface sediment

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Sediment	PAHs								
	Benzo(a)anthracene	mg/kg	3.30	Not Determined	6.9	6.9	mg/kg	Maximum	See footnote.
	Benzo(a)pyrene	mg/kg	3.35	Not Determined	7.2	7.2	mg/kg	Maximum	See footnote.
	Benzo(b)fluoranthene	mg/kg	4.67	Not Determined	11	11	mg/kg	Maximum	See footnote.
	Benzo(g,h,i)perylene	mg/kg	2.62	Not Determined	6.1	6.1	mg/kg	Maximum	See footnote.
	Benzo(k)fluoranthene	mg/kg	1.97	Not Determined	3.3	3.3	mg/kg	Maximum	See footnote.
	Carbazole	mg/kg	1.01	Not Determined	2.7	2.7	mg/kg	Maximum	See footnote.
	Dibenz(a,h)anthracene	mg/kg	0.67	Not Determined	1.3	1.3	mg/kg	Maximum	See footnote.
	Indeno(1,2,3-cd)pyrene	mg/kg	2.66	Not Determined	6.3	6.3	mg/kg	Maximum	See footnote.
	PCBs								
	Aroclor-1254	mg/kg	0.64	Not Determined	1.8	1.8	mg/kg	Maximum	See footnote.
	Aroclor-1260	mg/kg	1.13	Not Determined	2.9	2.9	mg/kg	Maximum	See footnote.
	Metals								
	Aluminum	mg/kg	7793	Not Determined	11000	11000	mg/kg	Maximum	See footnote.
	Arsenic	mg/kg	17.1	Not Determined	1.6	1.6	mg/kg	Maximum	See footnote.
	Chromium Total	mg/kg	105	Not Determined	290	290	mg/kg	Maximum	See footnote.
	Cobalt	mg/kg	6.27	Not Determined	12	12	mg/kg	Maximum	See footnote.
	Iron	mg/kg	13490	Not Determined	20000	20000	mg/kg	Maximum	See footnote.
	Lead	mg/kg	324	Not Determined	500	500	mg/kg	Maximum	See footnote.
	Manganese	mg/kg	260	Not Determined	570	570	mg/kg	Maximum	See footnote.
	Mercury	mg/kg	0.30	Not Determined	0.72	0.72	mg/kg	Maximum	See footnote.
	Vanadium	mg/kg	43.3	Not Determined	92	92	mg/kg	Maximum	See footnote.

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

TABLE A-3.4
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - PARCEL B
WATERBURY, CONNECTICUT

Scenario Timeframe: Current
Medium: Parcel B Surface Water
Exposure Medium: Surface Water

Exposure Point	Contaminant of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Surface Water	PAHs								
	Benzo(a)anthracene	µg/L	0.060	Not Determined	0.06	0.06	µg/L	Maximum	See footnote.
	Benzo(a)pyrene	µg/L	0.065	Not Determined	0.07	0.07	µg/L	Maximum	See footnote.
	Benzo(b)fluoranthene	µg/L	0.11	Not Determined	0.11	0.11	µg/L	Maximum	See footnote.
	Indeno(1,2,3-cd)pyrene	µg/L	0.070	Not Determined	0.07	0.07	µg/L	Maximum	See footnote.
	Metals								
	Arsenic	µg/L	1.31	Not Determined	1.41	1.41	µg/L	Maximum	See footnote.
	Cadmium	µg/L	2.09	Not Determined	2.34	2.34	µg/L	Maximum	See footnote.
	Chromium Total	µg/L	20.7	Not Determined	21.6	21.6	µg/L	Maximum	See footnote.
	Cobalt	µg/L	2.90	Not Determined	3.1	3.1	µg/L	Maximum	See footnote.
	Iron	µg/L	44650	Not Determined	47100	47100	µg/L	Maximum	See footnote.
	Lead	µg/L	33.2	Not Determined	35.3	35.3	µg/L	Maximum	See footnote.
	Manganese	µg/L	993	Not Determined	1020	1020	µg/L	Maximum	See footnote.
	Mercury	µg/L	0.33	Not Determined	0.33	0.33	µg/L	Maximum	See footnote.
	Vanadium	µg/L	24.1	Not Determined	26.2	26.2	µg/L	Maximum	See footnote.

Note: Maximum detected concentration used as the EPC in instances where n < 8 or detects < 4 and the median value exceeded the maximum detected concentration.

TABLE A-4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE ADULT RESIDENT CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future or Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil or All Soil (0-10 feet bgs)
Receptor Population: Resident
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 2002b	50	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	
	ED	Exposure Duration	years	24	EPA, 2002b	7	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	AT-N	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	8760	EPA, 1989a	2555	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	5700	(c)	5700	(c)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.07	EPA, 2004	0.01	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	
	ED	Exposure Duration	years	24	EPA, 2002b	7	EPA, 1997a	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-N	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	8760	EPA, 1989a	2555	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	24	(b)	24	(b)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	or
	ED	Exposure Duration	years	24	EPA, 2002b	7	EPA, 1997a	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-N	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	8760	EPA, 1989a	2555	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration

(a) Tables A-3.1d1, e1, e3, f, and j; and Tables A-3.2 d1, e1, e3, f, and j.
(b) Professional judgment.
(c) Surface area represented by hands, head, forearms, and lower legs. EPA, 2004.

TABLE A-4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE CHILD RESIDENT CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future or Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil or All Soil (0-10 feet bgs)
Receptor Population: Resident
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	200	EPA, 2002b	100	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	
	ED	Exposure Duration	years	6	EPA, 2002b	2	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	15	EPA, 2002b	15	EPA, 2002b	
	AT-N	Averaging Time (Non-Cancer)	days	2190	EPA, 1989a	730	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	2800	(c)	2800	(c)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.04	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	
	ED	Exposure Duration	years	6	EPA, 2002b	2	EPA, 1997a	
	BW	Body Weight	kg	15	EPA, 2002b	15	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-N	Averaging Time (Non-Cancer)	days	2190	EPA, 1989a	730	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	24	(b)	24	(b)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	or
	ED	Exposure Duration	years	6	EPA, 2002b	2	EPA, 1997a	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-N	Averaging Time (Non-Cancer)	days	2190	EPA, 1989a	730	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration

(a) Tables A-3.1d1, e1, e3, f, and j; and Tables A-3.2 d1, e1, e3, f, and j.
(b) Professional judgment.
(c) Surface area represented by hands, head, feet, forearms, and lower legs of child (age 1-6). EPA, 2004.

TABLE A-4.3
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE LIFETIME RESIDENT CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future or Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil or All Soil (0-10 feet bgs)
Receptor Population: Resident
Receptor Age: Adult/Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IFSadj	Age-Adjusted Soil Ingestion Factor	mg-y/kg-day	114	calculated	18	calculated	
	IRSa	Ingestion Rate of Soil - adult	mg/day	100	EPA, 2002b	50	EPA, 1997a	$CS \times IFS_{adj} \times CF \times FI \times EF \times 1/AT\text{-}C$
	IRSc	Ingestion Rate of Soil - child	mg/day	200	EPA, 2002b	100	EPA, 1997a	
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	Where
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	$IFS_{adj} = (IRS_c \times ED_c \times 1/BW_c) + (IRS_a \times ED_a \times 1/BW_a)$
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	
	EDa	Exposure Duration - adult	years	24	EPA, 2002b	7	EPA, 1997a	
	EDc	Exposure Duration - child	years	6	EPA, 2002b	2	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BWa	Body Weight - adult	kg	70	EPA, 2002b	70	EPA, 2002b	
	BWc	Body Weight - child	kg	15	EPA, 2002b	15	EPA, 2002b	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SFSadj	Age-Adjusted Soil Contact Factor	mg-y/kg-event	360.8	calculated	20.6	calculated	
	SAa	Surface Area - adult	cm^2	5700	(c)	5700	(c)	CS x SFSadj x DABS x EV x EF x CF1 x 1/AT-C
	SAc	Surface Area - child	cm^2	2800	(c)	2800	(c)	
	SSAFa	Soil-to-Skin Adherence Factor - adult	mg/cm^2-event	0.07	EPA, 2004	0.01	EPA, 2004	Where
	SSAFc	Soil-to-Skin Adherence Factor - child	mg/cm^2-event	0.2	EPA, 2004	0.04	EPA, 2004	$SFS_{adj} = (SA_c \times SSAFc \times ED_c \times 1/BW_c) + (SAa \times SSAFa \times ED_a \times 1/BW_a)$
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	
	EDa	Exposure Duration - adult	years	24	EPA, 2002b	7	EPA, 1997a	
	EDc	Exposure Duration - child	years	6	EPA, 2002b	2	EPA, 1997a	
	BWa	Body Weight - adult	kg	70	EPA, 2002b	70	EPA, 2002b	
	BWc	Body Weight - child	kg	15	EPA, 2002b	15	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	24	(b)	24	(b)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	350	EPA, 2002b	350	EPA, 2002b	or
	ED	Exposure Duration - adult & child	years	30	EPA, 1989a	9	EPA, 1989a	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Tables A-3.1d1, e1, e3, f, and j; and Tables A-3.2 d1, e1, e3, f, and j.
(b) Professional judgment.
(c) Surface area represented by hands, head, forearms, and lower legs for adult; hands, head, feet, forearms, and lower legs for child (age 1-6). EPA, 2004.

TABLE A-4.4
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE CHILD RECREATIONAL VISITOR CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil
Receptor Population: Recreational Visitor
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Table A-3.1E1	Chemical-Specific	Table A-3.1E1	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	200	EPA, 2002b	100	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(a)	1	(a)	
	OABS	Oral Absorption Factor	--	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	156	(a)	78	(a)	
	ED	Exposure Duration	years	6	EPA, 2002b	2	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	15	EPA, 2002b	15	EPA, 2002b	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2190	EPA, 1989a	730	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Table A-3.1E1	Chemical-Specific	Table A-3.1E1	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	2800	(b)	2800	(b)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.04	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	156	(a)	78	(a)	
	ED	Exposure Duration	years	6	EPA, 2002b	2	EPA, 1997a	
	BW	Body Weight	kg	15	EPA, 2002b	15	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2190	EPA, 1989a	730	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Table A-3.1E1	Chemical-Specific	Table A-3.1E1	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	8	(a)	4	(a)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	156	(a)	78	(a)	or
	ED	Exposure Duration	years	6	EPA, 2002b	2	EPA, 1997a	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	2190	EPA, 1989a	730	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Professional judgment.
(b) Surface area represented by hands, head, feet, forearms, and lower legs of child (age 1-6). EPA, 2004.

TABLE A-4.5
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE GROUNDSKEEPER CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future or Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil or All Soil (0-10 feet bgs)
Receptor Population: Groundskeeper
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 2002b	50	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	225	EPA, 2002b	45	(b)	
	ED	Exposure Duration	years	25	EPA, 2002b	9	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	9125	EPA, 1989a	3285	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	3300	(c)	3300	(c)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.02	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	225	EPA, 2002b	45	(b)	
	ED	Exposure Duration	years	25	EPA, 2002b	9	EPA, 1997a	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	9125	EPA, 1989a	3285	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	8	(b)	8	(b)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	225	EPA, 2002b	45	(b)	or
	ED	Exposure Duration	years	25	EPA, 2002b	9	EPA, 1997a	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	9125	EPA, 1989a	3285	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Tables A-3.1e1, e3, and j and A-3.2j.
(b) Professional judgment.
(c) Surface area represented by hands, head, and forearms. EPA, 2004.

TABLE A-4.6
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE COMMERCIAL/INDUSTRIAL WORKER CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future or Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil or All Soil (0-10 feet bgs)
Receptor Population: Commercial/Industrial Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 2002b	50	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	250	EPA, 2004	219	EPA, 2004	
	ED	Exposure Duration	years	25	EPA, 2002b	9	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	9125	EPA, 1989a	3285	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	3300	(c)	3300	(c)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.02	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	250	EPA, 2004	219	EPA, 2004	
	ED	Exposure Duration	years	25	EPA, 2002b	9	EPA, 1997a	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	9125	EPA, 1989a	3285	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	chemical-specific	EPA, 2002b	chemical-specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	8	(b)	8	(b)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	250	EPA, 2004	219	EPA, 2004	or
	ED	Exposure Duration	years	25	EPA, 2002b	9	EPA, 1997a	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	9125	EPA, 1989a	3285	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Tables A-3.1 d3, e2, g, h, i, j and A-3.2d3, e2, g, h, i, and j.
(b) Professional judgment.
(c) Surface Area represented by hands, head, and forearms. EPA, 2004.

TABLE A-4.7
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE DAY CARE CHILD CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil
Receptor Population: Day Care
Receptor Age: Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Table A-3.1e2	Chemical-Specific	Table A-3.1e2	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	200	EPA, 2002b	100	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(a)	1	(a)	
	OABS	Oral Absorption Factor	--	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	250	(a)	72	(a)	
	ED	Exposure Duration	years	5	(a)	2	(a)	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	15	EPA, 2002b	15	EPA, 2002b	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	1825	EPA, 1989a	730	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Table A-3.1e2	Chemical-Specific	Table A-3.1e2	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	2800	(b)	2800	(b)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.04	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	250	(a)	72	(a)	
	ED	Exposure Duration	years	5	(a)	2	(a)	
	BW	Body Weight	kg	15	EPA, 2002b	15	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	1825	EPA, 1989a	730	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	Table A-3.1e2	Chemical-Specific	Table A-3.1e2	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	8	(a)	4	(a)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	250	(a)	72	(a)	or
	ED	Exposure Duration	years	5	(a)	2	(a)	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	1825	EPA, 1989a	730	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Professional judgment.
(b) Surface Area represented by hands, head, feet, forearms, and lower legs of child (age 1-6). EPA, 2004.

TABLE A-4.8
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE CONSTRUCTION WORKER CONTACT WITH SOIl
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: All Soil 0-10 feet bgs
Receptor Population: Construction Worker
Receptor Age: Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	330	EPA, 2002b	100	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	130	(b)	26	(b)	
	ED	Exposure Duration	years	1	(b)	1	(b)	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989a	365	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	3300	(c)	3300	(c)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.3	EPA, 2004	0.1	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	130	(b)	26	(b)	
	ED	Exposure Duration	years	1	(b)	1	(b)	
	BW	Body Weight	kg	70	EPA, 2002b	70	EPA, 2002b	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	365	EPA, 1989a	365	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+06	EPA, 2002b	1.4E+06	EPA, 2002b	(CA x ET x EF x ED)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	8	(b)	8	(b)	CA ($\mu g/m^3$) = (CS/PEF) x 1000 $\mu g/mg$
	EF	Exposure Frequency	days/year	130	(b)	26	(b)	or
	ED	Exposure Duration	years	1	(b)	1	(b)	CA ($\mu g/m^3$) = (CS/VF) x 1000 $\mu g/mg$
	AT-C	Averaging Time (Cancer)	hours	613200	EPA, 2009b	613200	EPA, 2009b	
	AT-N	Averaging Time (Non-Cancer)	hours	8760	EPA, 2009b	8760	EPA, 2009b	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration

(a) Tables A-3.2d1, d3, e1, e2, e3, f, g, h, i, and j.
(b) Professional judgment.
(c) Surface area represented by hands, head, and forearms. EPA, 2004.

TABLE A-4.9
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE TRESPASSER CONTACT WITH SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Soil
Exposure Point: Surface Soil
Receptor Population: Trespasser
Receptor Age: Adolescent (age 6-16 years)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Intake (mg/kg-day) =
	IR-S	Ingestion Rate of Soil	mg/day	100	EPA, 2002b	50	EPA, 1997a	CS x IR-S x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(b)	1	(b)	
	OABS	Oral Absorption Factor	--	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	78	(b)	18	(b)	
	ED	Exposure Duration	years	10	(b)	10	(b)	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	39	EPA, 1997a	39	EPA, 1997a	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	3650	EPA, 1989a	3650	EPA, 1989a	
Dermal	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	4184	(c)	4184	(c)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Soil-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.04	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(b)	1	(b)	
	EF	Exposure Frequency	days/year	78	(b)	18	(b)	
	ED	Exposure Duration	years	10	(b)	10	(b)	
	BW	Body Weight	kg	39	EPA, 1997a	39	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	3650	EPA, 1989a	3650	EPA, 1989a	
Inhalation	CS	Chemical Concentration in Soil	mg/kg	Chemical-Specific	(a)	Chemical-Specific	(a)	Average Daily Concentration ($\mu g/m^3$) =
	PEF	Particulate Emission Factor from Soil	m^3/kg	1.4E+09	EPA, 2002b	1.4E+09	EPA, 2002b	(CA x ET x EF x ED x CF2)/AT
	VF	Volatilization Factor	m^3/kg	Chemical-Specific	EPA, 2002b	Chemical-Specific	EPA, 2002b	
	CA	Chemical Concentration in Air	$\mu g/m^3$	calculated	EPA, 2002b	calculated	EPA, 2002b	where:
	ET	Exposure Time	hours/day	4	(b)	2	(b)	CA ($\mu g/m^3$) = (CS/PEF) x CF3
	EF	Exposure Frequency	days/year	78	(b)	18	(b)	or
	ED	Exposure Duration	years	10	(b)	10	(b)	CA ($\mu g/m^3$) = (CS/VF) x CF3
	CF2	Conversion Factor 2	days/hour	0.042	--	0.042	--	
	CF3	Conversion Factor 3	µg/mg	1000	--	1000	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	3650	EPA, 1989a	3650	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration

(a) Table A-3.1j.
(b) Professional judgment. EF assumes RME 2 day/week, 9 months/year; CTE 2 day/week, 2 months/year.
(b) Surface area represented by hands, head, forearms, and lower legs. EPA, 1997a

TABLE A-4.10
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE TRESPASSER CONTACT WITH SEDIMENT
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Wetland Area
Receptor Population: Trespasser
Receptor Age: Adolescent (age 6-16 years)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CSd	Chemical Concentration in Sediment	mg/kg	Chemical-Specific	Table A-3.3	Chemical-Specific	Table A-3.3	Intake (mg/kg-day) =
	IR-SD	Ingestion Rate of Sediment	mg/day	100	EPA, 2002b	50	EPA, 1997a	CSd x IR-Sd x FI x OABS x EF x ED x CF1/(BW x AT)
	FI	Fraction Ingested From Contaminated Source	--	1	(a)	1	(a)	
	OABS	Oral Absorption Factor	--	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	18	(a)	9	(a)	
	ED	Exposure Duration	years	10	(a)	10	(a)	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	BW	Body Weight	kg	39	EPA, 1997a	39	EPA, 1997a	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	3650	EPA, 1989a	3650	EPA, 1989a	
Dermal	CSd	Chemical Concentration in Sediment	mg/kg	Chemical-Specific	Table A-3.3	Chemical-Specific	Table A-3.3	Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	4184	(b)	4184	(b)	CS x SA x SSAF x DABS x EV x EF x ED x CF1/(BW x AT)
	SSAF	Sediment-to-Skin Adherence Factor	mg/cm^2-event	0.2	EPA, 2004	0.04	EPA, 2004	
	DABS	Dermal Absorption Factor (Solid)	--	Chemical-Specific	Table H-1	Chemical-Specific	Table H-1	
	EV	Event Frequency	events/day	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	18	(a)	9	(a)	
	ED	Exposure Duration	years	10	(a)	10	(a)	
	BW	Body Weight	kg	39	EPA, 1997a	39	EPA, 1997a	
	CF1	Conversion Factor 1	kg/mg	1E-06	--	1E-06	--	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	3650	EPA, 1989a	3650	EPA, 1989a	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Professional judgment. EF assumes RME 1 day/week, 4 months/year; CTE 1 day/week, 2 months/year.
(b) Surface area represented by hands, head, forearms, and lower legs. EPA, 1997a

TABLE A-4.11
VALUES USED FOR DAILY INTAKE CALCULATIONS - RME AND CTE TRESPASSER CONTACT WITH SURFACE WATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Wetland Area
Receptor Population: Trespasser
Receptor Age: Adolescent (age 6-16 years)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CTE Value	CTE Rationale/ Reference	Intake Equation/ Model Name
Dermal	DA_{event}	Absorbed Dose per Event	mg/cm^2-event	calculated		calculated		Dermal Absorbed Dose (mg/kg-day) =
	SA	Surface Area	cm^2	4184	(b)	4184	(b)	DA_{event} x SA x EV x EF x ED /(BW x AT)
	EV	Event Frequency	events/day	1	(a)	1	(a)	
	EF	Exposure Frequency	days/year	18	(a)	9	(a)	for inorganics:
	ED	Exposure Duration	years	10	(a)	10	(a)	DA_{event} = CW x Kp x t_{event} x CF
	BW	Body Weight	kg	39	EPA, 1997a	39	EPA, 1997a	
	AT-C	Averaging Time (Cancer)	days	25550	EPA, 1989a	25550	EPA, 1989a	
	AT-N	Averaging Time (Non-Cancer)	days	3650	EPA, 1989a	3650	EPA, 1989a	
	CW	Chemical Concentration in Surface Water	µg/L	Chemical-Specific	Table A-3.4	Chemical-Specific	Table A-3.4	
	Kp	Dermal Permeability Coefficients	cm/hr	Chemical-Specific	Table H-2	Chemical-Specific	Table H-2	
	t_{event}	EventTime	hr/event	2	(a)	1	(a)	
	CF	Conversion Factor	mg-L/µg-cm^3	1.00E-06	--	1.00E-06	--	
	FA	Fraction Absorbed Water	unitless	Chemical-Specific	EPA, 2004	Chemical-Specific	EPA, 2004	
	t*	Time to Reach Steady State	hr/event	Chemical-Specific	EPA, 2004	Chemical-Specific	EPA, 2004	
	τ_{event}	Lag Time Per Event	hr/event	Chemical-Specific	EPA, 2004	Chemical-Specific	EPA, 2004	
	B	Ratio of Permeability Coefficient	unitless	Chemical-Specific	EPA, 2004	Chemical-Specific	EPA, 2004	

Notes/Sources:
RME - Reasonable Maximum Exposure
CTE - Central Tendency Exposure
EPC - Exposure Point Concentration
(a) Professional judgment. EF assumes RME 1 day/week, 4 months/year; CTE 1 day/week, 2 months/year.
(b) Surface area represented by hands, head, forearms, and lower legs. EPA, 1997a

Equations for DA_{event} for organics:
If $t_{event} < t^*$

$$DA_{event} = 2FA \times Kp \times CW \times CF \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}}$$

If $t_{event} > t^*$

$$DA_{event} = FA \times Kp \times CW \times CF \times \left[\frac{t_{event}}{1+B} + 2\tau_{event} \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

TABLE A-5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD: Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Dates (2)
Benzene	Chronic	4.00E-03	(mg/kg-day)	1.0	4.00E-03	(mg/kg-day)	Blood	300	IRIS	3/3/2010
Bis(2-Chloroethyl)ether	---	NA	---	---	NA	---	---	---	---	---
4-Bromophenyl phenyl ether	---	NA	---	---	NA	---	---	---	---	---
n-Butylbenzene	---	NA	---	---	NA	---	---	---	---	---
sec-Butylbenzene	---	NA	---	---	NA	---	---	---	---	---
4-Chlorophenyl phenyl ether	---	NA	---	---	NA	---	---	---	---	---
Cymene	---	NA	---	---	NA	---	---	---	---	---
Dibenzofuran	Chronic	1.00E-03	(mg/kg-day)	1.0	1.00E-03	(mg/kg-day)	Body and organ weight	10,000	PPRTV Appendix	6/11/2007
Dieldrin	Chronic	5.00E-05	(mg/kg-day)	1.0	5.00E-05	(mg/kg-day)	Liver	100	IRIS	3/3/2010
Dimethyl phthalate	---	NA	---	---	NA	---	---	---	---	---
Di-n-octyl phthalate	---	NA	---	---	NA	---	---	---	---	---
4,6-Dinitro-2-methylphenol	Chronic	8.00E-05	(mg/kg-day)	1.0	8.00E-05	(mg/kg-day)	Reduced body weight	10,000	PPRTV Appendix	4/22/2010
Dioxins/Furans										
2,3,7,8-TCDD TEQ	Chronic	1.00E-09	(mg/kg-day)	1.0	1.00E-09	(mg/kg-day)	Developmental	90	ATSDR MRL	12/1/2009
Heptachlor Epoxide	Chronic	1.30E-05	(mg/kg-day)	1.0	1.30E-05	(mg/kg-day)	Liver	1,000	IRIS	3/3/2010
Hexachlorobenzene	Chronic	8.00E-04	(mg/kg-day)	1.0	8.00E-04	(mg/kg-day)	Liver	100	IRIS	3/3/2010
3-Nitroaniline	---	NA	---	---	NA	---	---	---	---	---
2-Nitrophenol	---	NA	---	---	NA	---	---	---	---	---
4-Nitrophenol	---	NA	---	---	NA	---	---	---	---	---
N-Nitrosodi-n-propylamine	---	NA	---	---	NA	---	---	---	---	---
PAHS										
Benzo(a)anthracene	---	NA	---	---	NA	---	---	---	---	---
Benzo(a)pyrene	---	NA	---	---	NA	---	---	---	---	---
Benzo(b)fluoranthene	---	NA	---	---	NA	---	---	---	---	---
Benzo(g,h,i)perylene	---	NA	---	---	NA	---	---	---	---	---
Benzo(k)fluoranthene	---	NA	---	---	NA	---	---	---	---	---
Carbazole	---	NA	---	---	NA	---	---	---	---	---
Chrysene	---	NA	---	---	NA	---	---	---	---	---
Dibenz(a,h)anthracene	---	NA	---	---	NA	---	---	---	---	---
Fluoranthene	Chronic	4.00E-02	(mg/kg-day)	1.0	4.00E-02	(mg/kg-day)	Liver, Kidney, Blood	3,000	IRIS	3/3/2010
Indeno(1,2,3-cd)pyrene	---	NA	---	---	NA	---	---	---	---	---
Naphthalene	Chronic	2.00E-02	(mg/kg-day)	1.0	2.00E-02	(mg/kg-day)	Body weight	3,000	IRIS	3/3/2010
Pyrene	Chronic	3.00E-02	(mg/kg-day)	1.0	3.00E-02	(mg/kg-day)	Kidney	3,000	IRIS	3/3/2010

TABLE A-5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD: Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Dates (2)
PCBs										
Aroclor 1254	Chronic	2.00E-05	(mg/kg-day)	1.0	2.00E-05	(mg/kg-day)	Eyes, Immune system	300	IRIS	3/3/2010
Aroclor 1260	---	NA	---	---	NA	---	---	---	---	---
Tetrachloroethene	Chronic	1.00E-02	(mg/kg-day)	1.0	1.00E-02	(mg/kg-day)	Liver	1,000	IRIS	3/3/2010
Trichloroethene	---	NA	---	---	NA	---	---	---	---	---
Vinyl chloride	Chronic	3.00E-03	(mg/kg-day)	1.0	3.00E-03	(mg/kg-day)	Liver	30	IRIS	3/3/2010
Metals										
Aluminum	Chronic	1.00E+00	(mg/kg-day)	1.0	1.00E+00	(mg/kg-day)	Nervous system	100	PPRTV	10/23/2006
Antimony	Chronic	4.00E-04	(mg/kg-day)	0.15	6.00E-05	(mg/kg-day)	Blood	1,000	IRIS	3/3/2010
Arsenic	Chronic	3.00E-04	(mg/kg-day)	1.0	3.00E-04	(mg/kg-day)	Skin	3	IRIS	3/3/2010
Barium	Chronic	2.00E-01	(mg/kg-day)	0.07	1.40E-02	(mg/kg-day)	Kidney	300	IRIS	3/3/2010
Cadmium-diet	Chronic	1.00E-03	(mg/kg-day)	0.025	2.50E-05	(mg/kg-day)	Kidney	10	IRIS	3/3/2010
Cadmium-water	Chronic	5.00E-04	(mg/kg-day)	0.05	2.50E-05	(mg/kg-day)	Kidney	10	IRIS	3/3/2010
Chromium, Total[3]	Chronic	3.00E-03	(mg/kg-day)	0.025	7.50E-05	(mg/kg-day)	None observed	900	IRIS	3/3/2010
Cobalt	Chronic	3.00E-04	(mg/kg-day)	1.0	3.00E-04	(mg/kg-day)	Thyroid	3,000	PPRTV	8/25/2008
Iron	Chronic	7.00E-01	(mg/kg-day)	1.0	7.00E-01	(mg/kg-day)	Gastrointestinal	1.5	PPRTV	9/11/2006
Lead	---	NA	---	---	NA	---	---	---	---	---
Manganese-diet	Chronic	7.00E-02	(mg/kg-day)	1.0	7.00E-02	(mg/kg-day)	Nervous system	1	EPA Region I	Risk Update #5, 1999
Manganese-water	Chronic	2.40E-02	(mg/kg-day)	0.040	9.60E-04	(mg/kg-day)	Nervous system	3	IRIS	3/3/2010
Mercury[4]	Chronic	1.60E-04	(mg/kg-day)	1.0	1.60E-04	(mg/kg-day)	Nervous system	1,000	CalEPA-OEHHA	Dec 2008 REL Table
Nickel	Chronic	2.00E-02	(mg/kg-day)	0.04	8.00E-04	(mg/kg-day)	Body weight	300	IRIS	3/3/2010
Silver	Chronic	5.00E-03	(mg/kg-day)	0.04	2.00E-04	(mg/kg-day)	Skin	3	IRIS	3/3/2010
Thallium	---	NA	---	---	NA	---	---	---	---	---
Vanadium[5]	Chronic	5.04E-03	(mg/kg-day)	0.026	1.31E-04	(mg/kg-day)	Hair	100	IRIS	3/3/2010
Vanadium[6]	Subchronic	5.04E-03	(mg/kg-day)	0.026	1.31E-04	(mg/kg-day)	Hair	100	HEAST	1997
Zinc	Chronic	3.00E-01	(mg/kg-day)	1.0	3.00E-01	(mg/kg-day)	Blood	3	IRIS	3/3/2010

(1) Source: RAGS Part E Guidance

(2) Represents date source was searched.

(3) Hexavalent chromium toxicity values selected to evaluate total chromium results because available chromium speciation data indicate presence of hexavalent chromium.

(4) Elemental Mercury.

(5) Vanadium and compounds - RfD derived from molecular weight (56%) adjustment of the RfD for vanadium pentoxide (EPA, 2010a) per Section 5.4 of the EPA RSL User guide. (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm)

(6) Vanadium and compounds - Subchronic RfD will be used in the construction worker scenario only. Subchronic RfD derived from molecular weight (56%) adjustment of the subchronic RfD for vanadium pentoxide (EPA, 1997b) per Section 5.4 of the EPA RSL User guide. (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm), Note that HEAST (EPA, 1997b) adopted the IRIS (EPA, 2010a) chronic RfD for the subchronic RfD.

Definitions:

ATSDR=Agency for Toxic Substances and Disease Registry
CalEPA=California Environmental Protection Agency
IRIS=Integrated Risk Information System
OEHHA=California Office of Environmental Health Hazard Assessm
NA=Not available
PPRTV = Provisional Peer-Reviewed Toxicity Value
MRL= Minimal Risk Levels
REL= Reference Exposure Levels

TABLE A-5.2
NON-CANCER TOXICITY DATA -- INHALATION
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC: Target Organ(s)	
		Value	Units			Source(s)	Dates (1)
Benzene	Chronic	3.00E-02	mg/m^3	Blood	300	IRIS	3/3/2010
Bis(2-chloroethyl)ether	---	NA	---	---	---	---	---
4-Bromophenyl phenyl ether	---	NA	---	---	---	---	---
n-Butylbenzene	---	NA	---	---	---	---	---
sec-Butylbenzene	---	NA	---	---	---	---	---
4-Chlorophenyl phenyl ether	---	NA	---	---	---	---	---
Cymene	---	NA	---	---	---	---	---
Dibenzofuran	---	NA	---	---	---	---	---
Dieldrin	---	NA	---	---	---	---	---
Dimethyl phthalate	---	NA	---	---	---	---	---
Di-n-octyl phthalate	---	NA	---	---	---	---	---
4,6-Dinitro-2-methylphenol	---	NA	---	---	---	---	---
Dioxins/Furans							
2,3,7,8-TCDD TEQ	Chronic	4.00E-08	mg/m^3	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	100	CalEPA-OEHHA	Dec 2008 REL Table
Heptachlor Epoxide	---	NA	---	---	---	---	---
Hexachlorobenzene	---	NA	---	---	---	---	---
3-Nitroaniline	---	NA	---	---	---	---	---
2-Nitrophenol	---	NA	---	---	---	---	---
4-Nitrophenol	---	NA	---	---	---	---	---
N-Nitrosodi-n-propylamine	---	NA	---	---	---	---	---
PAHs							
Benzo(a)anthracene	---	NA	---	---	---	---	---
Benzo(a)pyrene	---	NA	---	---	---	---	---
Benzo(b)fluoranthene	---	NA	---	---	---	---	---
Benzo(g,h,i)perylene	---	NA	---	---	---	---	---
Benzo(k)fluoranthene	---	NA	---	---	---	---	---
Carbazole	---	NA	---	---	---	---	---
Chrysene	---	NA	---	---	---	---	---
Dibenz[a,h]anthracene	---	NA	---	---	---	---	---
Fluoranthene	---	NA	---	---	---	---	---
Indeno[1,2,3-cd]pyrene	---	NA	---	---	---	---	---
Naphthalene	Chronic	3.00E-03	mg/m^3	Respiratory tract	3,000	IRIS	3/3/2010
Pyrene	---	NA	---	---	---	---	---

TABLE A-5.2
NON-CANCER TOXICITY DATA -- INHALATION
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Chronic/ Subchronic	Inhalation RfC Value	Inhalation RfC Units	Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC: Target Organ(s) Source(s)	RfC: Target Organ(s) Dates (1)
PCBs							
Aroclor 1254	---	NA	---	---	---	---	---
Aroclor 1260	---	NA	---	---	---	---	---
Tetrachloroethene[2]	Chronic	2.70E-01	mg/m3	Nervous system	100	ATSDR MRL	12/1/2009
Trichloroethene[3]	Chronic	1.00E-02	mg/m3	CNS	1,000	NYDOH	October, 2006
Vinyl chloride	Chronic	1.00E-01	mg/m^3	Liver	30	IRIS	3/3/2010
Metals							
Aluminum	Chronic	5.00E-03	mg/m^3	Nervous system	300	PPRTV	10/23/2006
Antimony	---	NA	---	---	---	---	---
Arsenic	Chronic	1.50E-05	mg/m^3	Developmental, Cardiovascular system, Nervous system, Lung, Skin	30	CalEPA-OEHHA	Dec 2008 REL Table
Barium	Chronic	5.00E-04	mg/m^3	Developmental	1,000	HEAST	July, 1997
Cadmium	Chronic	1.00E-05	mg/m^3	Kidney	9	ATSDR MRL	12/1/2009
Chromium, Total[4]	Chronic	1.00E-04	mg/m^3	Respiratory tract	300	IRIS	3/3/2010
Cobalt	Chronic	6.00E-06	mg/m^3	Respiratory tract	300	PPRTV	8/25/2008
Iron	---	NA	---	---	---	---	---
Lead	---	NA	---	---	---	---	---
Manganese	Chronic	5.00E-05	mg/m^3	Nervous system	1,000	IRIS	3/3/2010
Mercury[5]	Chronic	3.00E-04	mg/m^3	Nervous system	30	IRIS	3/3/2010
Nickel	Chronic	9.00E-05	mg/m^3	Respiratory tract	30	ATSDR MRL	12/1/2009
Silver	---	NA	---	---	---	---	---
Thallium	---	NA	---	---	---	---	---
Vanadium[6]	Chronic	3.92E-06	mg/m^3	Larynx	300	PPRTV	4/30/2008
Vanadium[7]	Subchronic	5.60E-05	mg/m^3	Lung	1,000	PPRTV	4/30/2008
Zinc	---	NA	---	---	---	---	---

(1) Represents date source was searched.

(2) ATSDR MRL of 0.04 ppm converted to 0.27 mg/m^3.

(3) In accordance with OSWER 2003, NYDOH value selected as a Tier 3 value.

(4) Hexavalent chromium toxicity values selected to evaluate total chromium results because available chromium speciation data indicate presence of hexavalent chromium.

(5) Elemental mercury.

(6) Vanadium and compounds - RfC derived from molecular weight adjustment (56%) of the RfC for vanadium pentoxide (EPA, 2008b) per Section 5.4 of the EPA RSL User guide. (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm)

(7) Vanadium and compounds - Subchronic RfC will be used in the construction worker scenario only. Subchronic RfC derived from molecular weight adjustment (56%) of the subchronic RfC for vanadium pentoxide (EPA, 2008b) per Section 5.4 of the EPA RSL User guide. (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm)

Definitions: ATSDR=Agency for Toxic Substances and Disease Registry
CalEPA=California Environmental Protection Agency
HEAST=Health Effects Assessment Summary Tables (EPA, 1997b)
IRIS=Integrated Risk Information System
NA=Not available
PPRTV = Provisional Peer-Reviewed Toxicity Value (EPA, various dates)
MRL=Minimum Risk Levels
NYDOH=New York Department of Health
OEHHA=California Office of Environmental Health Hazard Assessment
REL= Reference Exposure Levels

TABLE A-6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (1)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Dates (2)
Benzene	5.50E-02	$(mg/kg\text{-}day)^{-1}$	1.0	5.50E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	3/3/2010
bis(2-Chloroethyl)ether	1.10E+00	$(mg/kg\text{-}day)^{-1}$	1.0	1.10E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
4-Bromophenyl phenyl ether	NA	---	---	NA	---	No information	---	---
n-Butylbenzene	NA	---	---	NA	---	No information	---	---
sec-Butylbenzene	NA	---	---	NA	---	No information	---	---
4-Chlorophenyl phenyl ether	NA	---	---	NA	---	No information	---	---
Cymene	NA	---	---	NA	---	No information	---	---
Dibenzofuran	NA	---	---	NA	---	D	IRIS	3/3/2010
Dieldrin	1.60E+01	$(mg/kg\text{-}day)^{-1}$	1.0	1.60E+01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Dimethyl phthalate	NA	---	---	NA	---	D	IRIS	3/3/2010
Di-n-octyl phthalate	NA	---	---	NA	---	No information	---	---
4,6-Dinitro-2-methylphenol	NA	---	---	NA	---	No information	---	---
Dioxins/Furans								
2,3,7,8-TCDD TEQ	1.50E+05	$(mg/kg\text{-}day)^{-1}$	1.0	1.50E+05	$(mg/kg\text{-}day)^{-1}$	B2	HEAST	July, 1997
2,3,7,8-TCDD TEQ[3]	1.30E+05	$(mg/kg\text{-}day)^{-1}$	1.0	1.30E+05	$(mg/kg\text{-}day)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Heptachlor Epoxide	9.10E+00	$(mg/kg\text{-}day)^{-1}$	1.0	9.10E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Hexachlorobenzene	1.60E+00	$(mg/kg\text{-}day)^{-1}$	1.0	1.60E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
3-Nitroaniline	NA	---	---	NA	---	No information	---	---
2-Nitrophenol	NA	---	---	NA	---	No information	---	---
4-Nitrophenol	NA	---	---	NA	---	No information	---	---
N-Nitrosodi-n-propylamine	7.00E+00	$(mg/kg\text{-}day)^{-1}$	1.0	7.00E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
PAHs								
Benzo(a)anthracene	7.30E-01	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Benzo(a)pyrene	7.30E+00	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Benzo(b)fluoranthene	7.30E-01	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Benzo(g,h,i)perylene	NA	---	---	NA	---	D	IRIS	3/3/2010
Benzo(k)fluoranthene	7.30E-02	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Carbazole	NA	---	---	NA	---	No information	---	---
Chrysene	7.30E-03	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E-03	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Dibenz(a,h)anthracene	7.30E+00	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Fluoranthene	NA	---	---	NA	---	D	IRIS	3/3/2010
Indeno(1,2,3-cd)pyrene	7.30E-01	$(mg/kg\text{-}day)^{-1}$	1.0	7.30E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Naphthalene	NA	---	---	NA	---	C	IRIS	3/3/2010
Pyrene	NA	---	---	NA	---	D	IRIS	3/3/2010

TABLE A-6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (1)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Dates (2)
PCBs								
Aroclor 1254[4]	2.00E+00	$(mg/kg\text{-}day)^{-1}$	1.0	2.00E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Aroclor 1260[4]	2.00E+00	$(mg/kg\text{-}day)^{-1}$	1.0	2.00E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	3/3/2010
Tetrachloroethene	5.40E-01	$(mg/kg\text{-}day)^{-1}$	1.0	5.40E-01	$(mg/kg\text{-}day)^{-1}$	No information	CalEPA-OEHHA	7/21/2009
Trichloroethene	5.90E-03	$(mg/kg\text{-}day)^{-1}$	1.0	5.90E-03	$(mg/kg\text{-}day)^{-1}$	No information	CalEPA-OEHHA	7/21/2009
Vinyl chloride[5]	7.20E-01	$(mg/kg\text{-}day)^{-1}$	1.0	7.20E-01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	3/3/2010
Metals								
Aluminum	NA	---	---	NA	---	No information	---	---
Antimony	NA	---	---	NA	---	No information	---	---
Arsenic	1.50E+00	$(mg/kg\text{-}day)^{-1}$	1.0	1.50E+00	$(mg/kg\text{-}day)^{-1}$	A	IRIS	3/3/2010
Barium	NA	---	---	NA	---	D	IRIS	3/3/2010
Cadmium	NA	---	---	NA	---	B1	IRIS	3/3/2010
Chromium, Total[6]	5.00E-01	$(mg/kg\text{-}day)^{-1}$	0.025	1.25E-02	$(mg/kg\text{-}day)^{-1}$	A	NJDEP	4/8/2009
Cobalt	NA	---	---	NA	---	No information	---	---
Iron	NA	---	---	NA	---	No information	---	---
Lead	NA	---	---	NA	---	B2	IRIS	3/3/2010
Manganese	NA	---	---	NA	---	D	IRIS	3/3/2010
Mercury	NA	---	---	NA	---	D	IRIS	3/3/2010
Nickel	NA	---	---	NA	---	No information	---	---
Silver	NA	---	---	NA	---	D	IRIS	3/3/2010
Thallium	NA	---	---	NA	---	No information	IRIS	3/3/2010
Vanadium	NA	---	---	NA	---	No information	---	---
Zinc	NA	---	---	NA	---	D	IRIS	3/3/2010

(1) Source: RAGS Part E Guidance

(2) Represents date source was searched.

(3) Alternative dioxin toxicity value available from California EPA.

(4) The IRIS slope factor for high risk, high persistence environmental mixtures is selected.

(5) The vinyl chloride CSF value represents a continuous lifetime exposure during adulthood.

(6) Chromium VI, NJDEP value endorsed by OSWER, September 28, 2009. Hexavalent chromium toxicity values selected to evaluate total chromium results because available chromium speciation data indicate presence of hexavalent chromium

Definitions: CalEPA=California Environmental Protection Agency
HEAST=Health Effects Assessment Summary Tables (EPA, 1997b)
IRIS = Integrated Risk Information System
OEHHA=California Office of Environmental Health Hazard Assessment
NJDEP=New Jersey Department of Environmental Protection
NA = Not available.
A - Human carcinogen.
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans.
C - Possible human carcinogen.
D - Not classifiable as a human carcinogen.

TABLE A-6.2
CANCER TOXICITY DATA -- INHALATION
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Unit Risk		Weight of Evidence/ Cancer Guideline Description	Unit Risk: Inhalation CSF	
	Value	Units		Source(s)	Dates (1)
Benzene	7.80E-06	$(\mu g/m^3)^{-1}$	A	IRIS	3/3/2010
bis(2-Chloroethyl)ether	3.30E-04	$(\mu g/m^3)^{-1}$	B2	IRIS	3/3/2010
4-Bromophenyl phenyl ether	NA	---	No information	---	---
n-Butylbenzene	NA	---	No information	---	---
sec-Butylbenzene	NA	---	No information	---	---
4-Chlorophenyl phenyl ether	NA	---	No information	---	---
Cymene	NA	---	No information	---	---
Dibenzofuran	NA	---	D	IRIS	3/3/2010
Dieldrin	4.60E-03	$(\mu g/m^3)^{-1}$	B2	IRIS	3/3/2010
Dimethyl phthalate	NA	---	D	IRIS	3/3/2010
Di-n-octyl phthalate	NA	---	No information	---	---
4,6-Dinitro-2-methylphenol	NA	---	No information	---	---
Dioxins/Furans					
2,3,7,8-TCDD TEQ	3.80E+01	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Heptachlor Epoxide	2.60E-03	$(\mu g/m^3)^{-1}$	B2	IRIS	3/3/2010
Hexachlorobenzene	4.60E-04	$(\mu g/m^3)^{-1}$	B2	IRIS	3/3/2010
3-Nitroaniline	NA	---	No information	---	---
2-Nitrophenol	NA	---	No information	---	---
4-Nitrophenol	NA	---	No information	---	---
N-Nitrosodi-n-propylamine	2.00E-03	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
PAHs					
Benzo(a)anthracene	1.10E-04	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Benzo(a)pyrene	1.10E-03	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Benzo(b)fluoranthene	1.10E-04	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Benzo(g,h,i)perylene	NA	---	D	IRIS	3/3/2010
Benzo(k)fluoranthene	1.10E-04	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Carbazole	NA	---	No information	---	---
Chrysene	1.10E-05	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Dibenz(a,h)anthracene	1.20E-03	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Fluoranthene	NA	---	D	IRIS	3/3/2010
Indeno(1,2,3-cd)pyrene	1.10E-04	$(\mu g/m^3)^{-1}$	B2	CalEPA-OEHHA	7/21/2009
Naphthalene	3.40E-05	$(\mu g/m^3)^{-1}$	C	CalEPA-OEHHA	7/21/2009
Pyrene	NA	---	D	IRIS	3/3/2010

TABLE A-6.2
CANCER TOXICITY DATA -- INHALATION
SCOVILL INDUSTRIAL LANDFILL
WATERBURY, CONNECTICUT

Contaminant of Potential Concern	Unit Risk		Weight of Evidence/ Cancer Guideline	Unit Risk: Inhalation CSF	
	Value	Units	Description	Source(s)	Dates (1)
PCBs					
Aroclor 1254	5.71E-04	$(\mu g/m^3)^{-1}$	B2	IRIS	3/3/2010
Aroclor 1260	5.71E-04	$(\mu g/m^3)^{-1}$	B2	IRIS	3/3/2010
Tetrachloroethene	5.90E-06	$(\mu g/m^3)^{-1}$	No information	CalEPA-OEHHA	7/21/2009
Trichloroethene	2.00E-06	$(\mu g/m^3)^{-1}$	No information	CalEPA-OEHHA	7/21/2009
Vinyl chloride[2]	4.40E-06	$(\mu g/m^3)^{-1}$	A	IRIS	3/3/2010
Metals					
Aluminum	NA	---	No information	---	---
Antimony	NA	---	No information	---	---
Arsenic	4.30E-03	$(\mu g/m^3)^{-1}$	A	IRIS	3/3/2010
Barium	NA	---	D	IRIS	3/3/2010
Cadmium	1.80E-03	$(\mu g/m^3)^{-1}$	B1	IRIS	3/3/2010
Chromium, Total[3]	8.40E-02	$(\mu g/m^3)^{-1}$	A	IRIS	3/3/2010
Cobalt	9.00E-03	$(\mu g/m^3)^{-1}$	B2	PPRTV	8/25/2008
Iron	NA	---	No information	---	---
Lead	NA	---	B2	IRIS	3/3/2010
Manganese	NA	---	D	IRIS	3/3/2010
Mercury	NA	---	D	IRIS	3/3/2010
Nickel	2.60E-04	$(\mu g/m^3)^{-1}$	No information	CalEPA-OEHHA	7/21/2009
Silver	NA	---	D	IRIS	3/3/2010
Thallium	NA	---	No information	IRIS	3/3/2010
Vanadium[4]	1.50E-02	$(\mu g/m^3)^{-1}$	Suggestive of Cancer Potential	PPRTV	4/30/2008
Zinc	NA	---	D	IRIS	3/3/2010

(1) Represents date source was searched.

(2) The vinyl chloride IUR value represents a continuous lifetime exposure during adulthood.

(3) Hexavalent chromium toxicity values selected to evaluate total chromium results because available chromium speciation data indicate presence of hexavalent chromium.

(4) Vanadium and compounds - IUR derived from molecular weight (56%) adjustment the IUR for vanadium pentoxide (EPA, 2008b) per Section 5.4 of the EPA RSL User guide. (http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm)

Definitions: CalEPA=California Environmental Protection Agency
IRIS = Integrated Risk Information System.
OEHHA=California Office of Environmental Health Hazard Assessment
NA = Not available.
PPRTV = Provisional Peer-Reviewed Toxicity Value
A - Human carcinogen.
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans.
C - Possible human carcinogen.
D - Not classifiable as a human carcinogen.

TABLE A-7.1d1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	3.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	4.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	1.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.013
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	5.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.019
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	2.1E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0069
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	8.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.029
				Iron	1.47E+04	mg/kg	---	---	---	---	---	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.029
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	4.4E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0063
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	7.2E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0045
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	3.6E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0072
			Ingestion Total								---					0.11
			Dermal	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	6.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	8.7E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	7.1E-07	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	6.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	6.9E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0023
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.1d1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Dermal	Mercury	5.25E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0023
			Inhalation	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	6.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.3E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	6.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	6.8E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	2.9E-09	mg/m3	1.5E-05	mg/m3	0.00019
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	6.0E-06	mg/m3	0.00072
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	3.6E-10	mg/m3	3.0E-04	mg/m3	0.0000012
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	1.8E-08	mg/m3	3.9E-06	mg/m3	0.0046
			Inhalation Total								---					0.011
	Surface Soil Total										---					0.13
Soil Total											---					0.13
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.13

TABLE A-7.1d1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	1.6E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	2.8E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	4.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	1.3E-01	mg/kg-day	1.0E+00	mg/kg-day	0.13
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	5.4E-05	mg/kg-day	3.0E-04	mg/kg-day	0.18
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	1.9E-04	mg/kg-day	3.0E-03	mg/kg-day	0.065
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	8.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.27
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.9E-01	mg/kg-day	7.0E-01	mg/kg-day	0.27
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	4.1E-03	mg/kg-day	7.0E-02	mg/kg-day	0.059
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	6.7E-06	mg/kg-day	1.6E-04	mg/kg-day	0.042
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	3.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.067
			Ingestion Total								---					1.1
			Dermal	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	3.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	4.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	5.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	4.7E-06	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	4.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.1d1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Dermal	Mercury	5.25E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.015
			Inhalation	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	6.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.3E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	6.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	6.8E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	2.9E-09	mg/m3	1.5E-05	mg/m3	0.00019
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	6.0E-06	mg/m3	0.00072
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	3.6E-10	mg/m3	3.0E-04	mg/m3	0.0000012
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	1.8E-08	mg/m3	3.9E-06	mg/m3	0.0046
			Inhalation Total								---					0.011
	Surface Soil Total										---					1.1
Soil Total											---					1.1
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.1

TABLE A-7.1d1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.75E-01	mg/kg	5.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-06	---	---	---	---	---
				Benzo(a)pyrene	9.17E-01	mg/kg	1.4E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.5E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.23E+00	mg/kg	1.9E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.0E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.00E+00	mg/kg	1.6E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.9E-07	---	---	---	---	---
				Carbazole	2.22E-01	mg/kg	3.5E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	5.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.6E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	1.4E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.4E-06	---	---	---	---	---
				Metals												
				Aluminum	9.80E+03	mg/kg	1.5E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.22E+00	mg/kg	6.6E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.9E-06	---	---	---	---	---
				Chromium Total	1.52E+01	mg/kg	2.4E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	5.1E-05	---	---	---	---	---
				Cobalt	6.25E+00	mg/kg	9.8E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	2.3E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.21E+02	mg/kg	5.0E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.25E-01	mg/kg	8.2E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.00E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.64E+01	mg/kg	4.1E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.4E-04					---
			Dermal	Dimethyl phthalate	3.75E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	5.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-06	---	---	---	---	---
				Benzo(a)pyrene	9.17E-01	mg/kg	5.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.7E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.23E+00	mg/kg	7.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.00E+00	mg/kg	6.4E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.9E-07	---	---	---	---	---
				Carbazole	2.22E-01	mg/kg	1.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.1E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	5.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-06	---	---	---	---	---
				Metals												
				Aluminum	9.80E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.22E+00	mg/kg	6.3E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.4E-07	---	---	---	---	---
				Chromium Total	1.52E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.25E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.21E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.1d1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Dermal	Mercury	5.25E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.00E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								3.0E-05					---
			Inhalation	Dimethyl phthalate	3.75E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	2.3E-10	mg/m3	1.1E-04	(µg/m3)-1	6.5E-11	---	---	---	---	---
				Benzo(a)pyrene	9.17E-01	mg/kg	2.7E-10	mg/m3	1.1E-03	(µg/m3)-1	7.5E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.23E+00	mg/kg	3.6E-10	mg/m3	1.1E-04	(µg/m3)-1	1.0E-10	---	---	---	---	---
				Benzo(k)fluoranthene	1.00E+00	mg/kg	3.0E-10	mg/m3	1.1E-04	(µg/m3)-1	8.2E-11	---	---	---	---	---
				Carbazole	2.22E-01	mg/kg	6.6E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	9.6E-11	mg/m3	1.2E-03	(µg/m3)-1	2.9E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	2.7E-10	mg/m3	1.1E-04	(µg/m3)-1	7.4E-11	---	---	---	---	---
				Metals												
				Aluminum	9.80E+03	mg/kg	2.9E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.22E+00	mg/kg	1.2E-09	mg/m3	4.3E-03	(µg/m3)-1	5.4E-09	---	---	---	---	---
				Chromium Total	1.52E+01	mg/kg	4.5E-09	mg/m3	8.4E-02	(µg/m3)-1	9.5E-07	---	---	---	---	---
				Cobalt	6.25E+00	mg/kg	1.8E-09	mg/m3	9.0E-03	(µg/m3)-1	1.7E-08	---	---	---	---	---
				Iron	1.47E+04	mg/kg	4.4E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	3.21E+02	mg/kg	9.5E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	5.25E-01	mg/kg	1.6E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.00E+00	mg/kg	3.0E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.64E+01	mg/kg	7.8E-09	mg/m3	1.5E-02	(µg/m3)-1	1.2E-07	---	---	---	---	---
			Inhalation Total								1.1E-06					---
	Surface Soil Total										1.7E-04					---
Soil Total											1.7E-04					---
										Total of Receptor Risks Across All Media	1.7E-04				Total of Receptor Hazards Across All Media	---

TABLE A-7.2d1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	9.7E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	2.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	9.7E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	5.2E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0026
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.014
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	2.0E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0067
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	8.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.027
				Iron	1.42E+04	mg/kg	---	---	---	---	---	1.9E-02	mg/kg-day	7.0E-01	mg/kg-day	0.028
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0056
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	9.9E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0062
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	5.2E-05	mg/kg-day	2.0E-02	mg/kg-day	0.0026
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	3.9E-04	mg/kg-day	5.0E-03	mg/kg-day	0.076
			Ingestion Total								---					0.19
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	3.9E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	4.0E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	6.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	8.0E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	6.2E-07	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	5.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0015

TABLE A-7.2d1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	6.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0021
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.42E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0035
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	4.9E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	7.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	4.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	7.0E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	2.6E-09	mg/m3	1.5E-05	mg/m3	0.00017
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	4.1E-09	mg/m3	6.0E-06	mg/m3	0.00069
				Iron	1.42E+04	mg/kg	---	---	---	---	---	9.8E-06	mg/m3	NA	---	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	3.0E-04	mg/m3	0.0000017
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	2.6E-08	mg/m3	9.0E-05	mg/m3	0.00029
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	3.9E-06	mg/m3	0.050
			Inhalation Total								---					0.056
	Aggregate Soil Total										---					0.25
Soil Total											---					0.25
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.25

TABLE A-7.2d1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	4.7E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	9.1E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	7.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	1.1E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	1.1E-05	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	2.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	2.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	9.1E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	4.9E-07	mg/kg-day	2.0E-05	mg/kg-day	0.024
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	1.3E-01	mg/kg-day	1.0E+00	mg/kg-day	0.13
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	4.8E-05	mg/kg-day	3.0E-04	mg/kg-day	0.16
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	1.9E-04	mg/kg-day	3.0E-03	mg/kg-day	0.063
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	7.7E-05	mg/kg-day	3.0E-04	mg/kg-day	0.26
				Iron	1.42E+04	mg/kg	---	---	---	---	---	1.8E-01	mg/kg-day	7.0E-01	mg/kg-day	0.26
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	3.7E-03	mg/kg-day	7.0E-02	mg/kg-day	0.052
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	9.2E-06	mg/kg-day	1.6E-04	mg/kg-day	0.058
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	4.9E-04	mg/kg-day	2.0E-02	mg/kg-day	0.024
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	3.6E-03	mg/kg-day	5.0E-03	mg/kg-day	0.71
			Ingestion Total								---					1.7
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	2.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	4.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	5.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	4.1E-06	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	7.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	8.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	3.3E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	2.0E-05	mg/kg-day	0.0095

TABLE A-7.2d1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soils	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.42E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.023
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	4.9E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	7.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	4.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	7.0E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	2.6E-09	mg/m3	1.5E-05	mg/m3	0.00017
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	4.1E-09	mg/m3	6.0E-06	mg/m3	0.00069
				Iron	1.42E+04	mg/kg	---	---	---	---	---	9.8E-06	mg/m3	NA	---	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	3.0E-04	mg/m3	0.0000017
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	2.6E-08	mg/m3	9.0E-05	mg/m3	0.00029
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	3.9E-06	mg/m3	0.050
			Inhalation Total								---					0.056
	Aggregate Soil Total										---					1.8
Soil Total											---					1.8
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.8

TABLE A-7.2d1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	5.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	7.10E-02	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	8.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(a)pyrene	8.75E-01	mg/kg	1.4E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.3E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.13E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.5E-06	---	---	---	---	---
				Benzo(k)fluoranthene	8.72E-01	mg/kg	1.4E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.3E-07	---	---	---	---	---
				Carbazole	1.60E-01	mg/kg	2.5E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.6E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	5.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.2E-07	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	1.6E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.78E+00	mg/kg	5.9E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.9E-06	---	---	---	---	---
				Chromium Total	1.47E+01	mg/kg	2.3E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.9E-05	---	---	---	---	---
				Cobalt	5.99E+00	mg/kg	9.4E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.42E+04	mg/kg	2.2E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.86E+02	mg/kg	4.5E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	7.20E-01	mg/kg	1.1E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	3.83E+01	mg/kg	6.0E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.35E+00	mg/kg	2.1E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.81E+02	mg/kg	4.4E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.2E-04					---
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	1.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	7.10E-02	mg/kg	3.5E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-06	---	---	---	---	---
				Benzo(a)pyrene	8.75E-01	mg/kg	5.6E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.6E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.13E+00	mg/kg	7.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-06	---	---	---	---	---
				Benzo(k)fluoranthene	8.72E-01	mg/kg	5.6E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.6E-07	---	---	---	---	---
				Carbazole	1.60E-01	mg/kg	1.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.3E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.3E-08	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.78E+00	mg/kg	5.6E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.4E-07	---	---	---	---	---
				Chromium Total	1.47E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---

TABLE A-7.2d1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Cobalt	5.99E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.42E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.86E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	7.20E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	3.83E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.35E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.81E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								2.5E-05					---
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	7.10E-02	mg/kg	2.1E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	4.6E-11	---	---	---	---	---
				Benzo(a)pyrene	8.75E-01	mg/kg	2.6E-10	mg/m3	1.1E-03	(µg/m3)-1	7.2E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.13E+00	mg/kg	3.3E-10	mg/m3	1.1E-04	(µg/m3)-1	9.2E-11	---	---	---	---	---
				Benzo(k)fluoranthene	8.72E-01	mg/kg	2.6E-10	mg/m3	1.1E-04	(µg/m3)-1	7.1E-11	---	---	---	---	---
				Carbazole	1.60E-01	mg/kg	4.7E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	5.2E-11	mg/m3	1.2E-03	(µg/m3)-1	1.6E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	2.1E-10	mg/m3	1.1E-04	(µg/m3)-1	5.8E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	1.1E-11	mg/m3	5.7E-04	(µg/m3)-1	6.4E-12	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	3.0E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	3.78E+00	mg/kg	1.1E-09	mg/m3	4.3E-03	(µg/m3)-1	4.8E-09	---	---	---	---	---
				Chromium Total	1.47E+01	mg/kg	4.4E-09	mg/m3	8.4E-02	(µg/m3)-1	9.2E-07	---	---	---	---	---
				Cobalt	5.99E+00	mg/kg	1.8E-09	mg/m3	9.0E-03	(µg/m3)-1	1.6E-08	---	---	---	---	---
				Iron	1.42E+04	mg/kg	4.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.86E+02	mg/kg	8.5E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	7.20E-01	mg/kg	2.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Nickel	3.83E+01	mg/kg	1.1E-08	mg/m3	2.6E-04	(µg/m3)-1	2.9E-09	---	---	---	---	---
				Thallium	1.35E+00	mg/kg	4.0E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.81E+02	mg/kg	8.3E-08	mg/m3	1.5E-02	(µg/m3)-1	1.2E-06	---	---	---	---	---
			Inhalation Total								2.2E-06					---
	Aggregate Soil Total										1.5E-04					---
Soil Total											1.5E-04					---
										Total of Receptor Risks Across All Media	1.5E-04				Total of Receptor Hazards Across All Media	---

TABLE A-7.2d1-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	8.9E-09	mg/kg-day	NA	---	NA	6.2E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.8E-09	9.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	2.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.5E-07	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-08	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.5E-09	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	3.8E-09	mg/kg-day	NA	---	NA	2.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-08	2.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-08	1.2E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	9.1E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-09	6.4E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0032
				Metals												
				Aluminum	1.01E+04	mg/kg	2.4E-04	mg/kg-day	NA	---	NA	1.7E-02	mg/kg-day	1.0E+00	mg/kg-day	0.017
				Arsenic	3.78E+00	mg/kg	9.1E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-07	6.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.021
				Chromium Total	1.47E+01	mg/kg	3.5E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.8E-07	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0082
				Cobalt	5.99E+00	mg/kg	1.4E-07	mg/kg-day	NA	---	NA	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.034
				Iron	1.42E+04	mg/kg	3.4E-04	mg/kg-day	NA	---	NA	2.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.034
				Manganese	2.86E+02	mg/kg	6.9E-06	mg/kg-day	NA	---	NA	4.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0069
				Mercury	7.20E-01	mg/kg	1.7E-08	mg/kg-day	NA	---	NA	1.2E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0076
				Nickel	3.83E+01	mg/kg	9.2E-07	mg/kg-day	NA	---	NA	6.4E-05	mg/kg-day	2.0E-02	mg/kg-day	0.0032
				Thallium	1.35E+00	mg/kg	3.2E-08	mg/kg-day	NA	---	NA	2.3E-06	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	6.7E-06	mg/kg-day	NA	---	NA	4.7E-04	mg/kg-day	5.0E-03	mg/kg-day	0.094
			Ingestion Total								5.4E-07					0.23
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	2.7E-09	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	5.1E-10	mg/kg-day	NA	---	NA	3.6E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	5.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-09	3.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	8.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.0E-08	5.7E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.7E-09	7.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	8.2E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.0E-10	5.7E-07	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	1.5E-09	mg/kg-day	NA	---	NA	1.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-08	1.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	6.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.8E-09	4.6E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	3.8E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.7E-10	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0013

TABLE A-7.2d1-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.78E+00	mg/kg	8.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-08	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0019
				Chromium Total	1.47E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.99E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.42E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.86E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	3.83E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.35E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.0E-07					0.0032
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	4.5E-10	mg/m3	NA	---	NA	3.2E-08	mg/m3	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	8.7E-11	mg/m3	NA	---	NA	6.1E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	6.8E-10	mg/m3	1.1E-04	(µg/m3)-1	7.5E-11	4.8E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	1.1E-09	mg/m3	1.1E-03	(µg/m3)-1	1.2E-09	7.5E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	1.4E-09	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	9.7E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	1.1E-09	mg/m3	1.1E-04	(µg/m3)-1	1.2E-10	7.5E-08	mg/m3	NA	---	NA
				Carbazole	1.60E-01	mg/kg	2.0E-10	mg/m3	NA	---	NA	1.4E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	2.1E-10	mg/m3	1.2E-03	(µg/m3)-1	2.6E-10	1.5E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	8.7E-10	mg/m3	1.1E-04	(µg/m3)-1	9.5E-11	6.1E-08	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	4.6E-11	mg/m3	5.7E-04	(µg/m3)-1	2.7E-11	3.2E-09	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	1.2E-05	mg/m3	NA	---	NA	8.6E-04	mg/m3	5.0E-03	mg/m3	0.17
				Arsenic	3.78E+00	mg/kg	4.6E-09	mg/m3	4.3E-03	(µg/m3)-1	2.0E-08	3.2E-07	mg/m3	1.5E-05	mg/m3	0.022
				Chromium Total	1.47E+01	mg/kg	1.8E-08	mg/m3	8.4E-02	(µg/m3)-1	1.5E-06	1.3E-06	mg/m3	1.0E-04	mg/m3	0.013
				Cobalt	5.99E+00	mg/kg	7.3E-09	mg/m3	9.0E-03	(µg/m3)-1	6.6E-08	5.1E-07	mg/m3	6.0E-06	mg/m3	0.085
				Iron	1.42E+04	mg/kg	1.7E-05	mg/m3	NA	---	NA	1.2E-03	mg/m3	NA	---	NA
				Manganese	2.86E+02	mg/kg	3.5E-07	mg/m3	NA	---	NA	2.4E-05	mg/m3	5.0E-05	mg/m3	0.49
				Mercury	7.20E-01	mg/kg	8.8E-10	mg/m3	NA	---	NA	6.2E-08	mg/m3	3.0E-04	mg/m3	0.00021
				Nickel	3.83E+01	mg/kg	4.7E-08	mg/m3	2.6E-04	(µg/m3)-1	1.2E-08	3.3E-06	mg/m3	9.0E-05	mg/m3	0.036
				Thallium	1.35E+00	mg/kg	1.6E-09	mg/m3	NA	---	NA	1.2E-07	mg/m3	NA	---	NA
				Vanadium	2.81E+02	mg/kg	3.4E-07	mg/m3	1.5E-02	(µg/m3)-1	5.1E-06	2.4E-05	mg/m3	5.6E-05	mg/m3	0.43
			Inhalation Total								6.8E-06					1.2
	Aggregate Soil Total										7.4E-06					1.5
Soil Total											7.4E-06					1.5
										Total of Receptor Risks Across All Media	7.4E-06				Total of Receptor Hazards Across All Media	1.5

TABLE A-7.1d1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	6.3E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	8.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	6.9E-07	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	6.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	6.7E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0067
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0096
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0035
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	4.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.014
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	2.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0031
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	3.6E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0022
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	6.8E-07	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	1.8E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0036
			Ingestion Total								---					0.057
			Dermal	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	8.0E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	9.3E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	2.3E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	3.3E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	9.2E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	9.9E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00033
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.1d1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Dermal	Mercury	5.25E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.00033
			Inhalation	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	6.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.3E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	6.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	6.8E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	2.9E-09	mg/m3	1.5E-05	mg/m3	0.00019
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	6.0E-06	mg/m3	0.00072
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	3.6E-10	mg/m3	3.0E-04	mg/m3	0.0000012
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	1.8E-08	mg/m3	3.9E-06	mg/m3	0.0046
			Inhalation Total								---					0.011
	Surface Soil Total										---					0.069
Soil Total											---					0.069
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.069

TABLE A-7.1d1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	5.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	7.9E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	6.4E-06	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.1E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	5.8E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	6.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.063
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	2.7E-05	mg/kg-day	3.0E-04	mg/kg-day	0.090
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	9.7E-05	mg/kg-day	3.0E-03	mg/kg-day	0.032
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	4.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.13
				Iron	1.47E+04	mg/kg	---	---	---	---	---	9.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.13
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	2.1E-03	mg/kg-day	7.0E-02	mg/kg-day	0.029
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	3.4E-06	mg/kg-day	1.6E-04	mg/kg-day	0.021
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	6.4E-06	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	1.7E-04	mg/kg-day	5.0E-03	mg/kg-day	0.033
			Ingestion Total								---					0.54
			Dermal	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	7.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	8.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	9.3E-07	mg/kg-day	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	3.0E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	8.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	9.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0030
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.1d1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Dermal	Mercury	5.25E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0030
			Inhalation	Dimethyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	9.17E-01	mg/kg	---	---	---	---	---	6.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Carbazole	2.22E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	---	---	---	---	---	2.3E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	---	---	---	---	---	6.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.80E+03	mg/kg	---	---	---	---	---	6.8E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.22E+00	mg/kg	---	---	---	---	---	2.9E-09	mg/m3	1.5E-05	mg/m3	0.00019
				Chromium Total	1.52E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	6.25E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	6.0E-06	mg/m3	0.00072
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Manganese	3.21E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	5.25E-01	mg/kg	---	---	---	---	---	3.6E-10	mg/m3	3.0E-04	mg/m3	0.0000012
				Thallium	1.00E+00	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				Vanadium	2.64E+01	mg/kg	---	---	---	---	---	1.8E-08	mg/m3	3.9E-06	mg/m3	0.0046
			Inhalation Total								---					0.011
	Surface Soil Total										---					0.55
Soil Total											---					0.55
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.55

TABLE A-7.1d1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.75E-01	mg/kg	9.4E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-06	---	---	---	---	---
				Benzo(a)pyrene	9.17E-01	mg/kg	2.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.23E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.00E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.5E-07	---	---	---	---	---
				Carbazole	2.22E-01	mg/kg	5.6E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	8.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				Metals												
				Aluminum	9.80E+03	mg/kg	2.5E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.22E+00	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-06	---	---	---	---	---
				Chromium Total	1.52E+01	mg/kg	3.8E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.5E-05	---	---	---	---	---
				Cobalt	6.25E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	3.7E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.21E+02	mg/kg	8.1E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.25E-01	mg/kg	1.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.00E+00	mg/kg	2.5E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.64E+01	mg/kg	6.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								4.0E-05					---
			Dermal	Dimethyl phthalate	3.75E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-07	---	---	---	---	---
				Benzo(a)pyrene	9.17E-01	mg/kg	3.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.23E+00	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-07	---	---	---	---	---
				Benzo(k)fluoranthene	1.00E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.2E-08	---	---	---	---	---
				Carbazole	2.22E-01	mg/kg	8.2E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.1E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	---	---	---	---	---
				Metals												
				Aluminum	9.80E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.22E+00	mg/kg	3.6E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.4E-08	---	---	---	---	---
				Chromium Total	1.52E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.25E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.21E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.1d1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D1	Dermal	Mercury	5.25E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.00E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								3.4E-06					---
			Inhalation	Dimethyl phthalate	3.75E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	7.93E-01	mg/kg	7.0E-11	mg/m3	1.1E-04	(µg/m3)-1	3.5E-11	---	---	---	---	---
				Benzo(a)pyrene	9.17E-01	mg/kg	8.1E-11	mg/m3	1.1E-03	(µg/m3)-1	4.0E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.23E+00	mg/kg	1.1E-10	mg/m3	1.1E-04	(µg/m3)-1	5.4E-11	---	---	---	---	---
				Benzo(k)fluoranthene	1.00E+00	mg/kg	8.9E-11	mg/m3	1.1E-04	(µg/m3)-1	4.4E-11	---	---	---	---	---
				Carbazole	2.22E-01	mg/kg	2.0E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.26E-01	mg/kg	2.9E-11	mg/m3	1.2E-03	(µg/m3)-1	1.6E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.04E-01	mg/kg	8.0E-11	mg/m3	1.1E-04	(µg/m3)-1	4.0E-11	---	---	---	---	---
				Metals												
				Aluminum	9.80E+03	mg/kg	8.7E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.22E+00	mg/kg	3.7E-10	mg/m3	4.3E-03	(µg/m3)-1	1.6E-09	---	---	---	---	---
				Chromium Total	1.52E+01	mg/kg	1.3E-09	mg/m3	8.4E-02	(µg/m3)-1	5.1E-07	---	---	---	---	---
				Cobalt	6.25E+00	mg/kg	5.5E-10	mg/m3	9.0E-03	(µg/m3)-1	5.0E-09	---	---	---	---	---
				Iron	1.47E+04	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	3.21E+02	mg/kg	2.9E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	5.25E-01	mg/kg	4.7E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.00E+00	mg/kg	8.9E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.64E+01	mg/kg	2.3E-09	mg/m3	1.5E-02	(µg/m3)-1	3.5E-08	---	---	---	---	---
			Inhalation Total								5.5E-07					---
	Surface Soil Total										4.4E-05					---
Soil Total											4.4E-05					---
										Total of Receptor Risks Across All Media	4.4E-05				Total of Receptor Hazards Across All Media	---

TABLE A-7.2d1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	4.9E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	3.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	6.0E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	7.7E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	6.0E-07	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	4.9E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.6E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0013
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.9E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0069
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0086
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0034
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Iron	1.42E+04	mg/kg	---	---	---	---	---	9.7E-03	mg/kg-day	7.0E-01	mg/kg-day	0.014
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0028
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	4.9E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0031
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	2.6E-05	mg/kg-day	2.0E-02	mg/kg-day	0.0013
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	9.2E-07	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	1.9E-04	mg/kg-day	5.0E-03	mg/kg-day	0.038
			Ingestion Total								---					0.093
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	5.5E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	5.7E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	8.9E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	8.9E-08	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.8E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	7.2E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	4.2E-09	mg/kg-day	2.0E-05	mg/kg-day	0.00021

TABLE A-7.2d1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	8.8E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00029
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.42E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.00050
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	4.9E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	7.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	4.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	7.0E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	2.6E-09	mg/m3	1.5E-05	mg/m3	0.00017
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	4.1E-09	mg/m3	6.0E-06	mg/m3	0.00069
				Iron	1.42E+04	mg/kg	---	---	---	---	---	9.8E-06	mg/m3	NA	---	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	3.0E-04	mg/m3	0.0000017
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	2.6E-08	mg/m3	9.0E-05	mg/m3	0.00029
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	3.9E-06	mg/m3	0.050
			Inhalation Total								---					0.056
	Aggregate Soil Total										---					0.15
Soil Total											---					0.15
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.15

TABLE A-7.2d1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	4.5E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	3.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	5.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	7.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	5.6E-06	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	4.5E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.4E-07	mg/kg-day	2.0E-05	mg/kg-day	0.012
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.064
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	2.4E-05	mg/kg-day	3.0E-04	mg/kg-day	0.080
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	9.4E-05	mg/kg-day	3.0E-03	mg/kg-day	0.031
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	3.8E-05	mg/kg-day	3.0E-04	mg/kg-day	0.13
				Iron	1.42E+04	mg/kg	---	---	---	---	---	9.1E-02	mg/kg-day	7.0E-01	mg/kg-day	0.13
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	1.8E-03	mg/kg-day	7.0E-02	mg/kg-day	0.026
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	4.6E-06	mg/kg-day	1.6E-04	mg/kg-day	0.029
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	2.4E-04	mg/kg-day	2.0E-02	mg/kg-day	0.012
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	8.6E-06	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	1.8E-03	mg/kg-day	5.0E-03	mg/kg-day	0.36
			Ingestion Total								---					0.87
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	5.1E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	5.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	8.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	8.1E-07	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	6.6E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	3.8E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0019

TABLE A-7.2d1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soils	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	8.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0027
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.42E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0046
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	---	---	---	---	---	4.9E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	---	---	---	---	---	7.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	---	---	---	---	---	6.0E-10	mg/m3	NA	---	NA
				Carbazole	1.60E-01	mg/kg	---	---	---	---	---	1.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	---	---	---	---	---	4.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	---	---	---	---	---	2.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	7.0E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	3.78E+00	mg/kg	---	---	---	---	---	2.6E-09	mg/m3	1.5E-05	mg/m3	0.00017
				Chromium Total	1.47E+01	mg/kg	---	---	---	---	---	1.0E-08	mg/m3	1.0E-04	mg/m3	0.00010
				Cobalt	5.99E+00	mg/kg	---	---	---	---	---	4.1E-09	mg/m3	6.0E-06	mg/m3	0.00069
				Iron	1.42E+04	mg/kg	---	---	---	---	---	9.8E-06	mg/m3	NA	---	NA
				Manganese	2.86E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	7.20E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	3.0E-04	mg/m3	0.0000017
				Nickel	3.83E+01	mg/kg	---	---	---	---	---	2.6E-08	mg/m3	9.0E-05	mg/m3	0.00029
				Thallium	1.35E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Vanadium	2.81E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	3.9E-06	mg/m3	0.050
			Inhalation Total								---					0.056
	Aggregate Soil Total										---					0.93
Soil Total											---					0.93
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.93

TABLE A-7.2d1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	9.3E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	7.10E-02	mg/kg	1.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.3E-07	---	---	---	---	---
				Benzo(a)pyrene	8.75E-01	mg/kg	2.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.13E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-06	---	---	---	---	---
				Benzo(k)fluoranthene	8.72E-01	mg/kg	2.2E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.3E-07	---	---	---	---	---
				Carbazole	1.60E-01	mg/kg	4.0E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.6E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	9.5E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.9E-08	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	2.5E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.78E+00	mg/kg	9.5E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-06	---	---	---	---	---
				Chromium Total	1.47E+01	mg/kg	3.7E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.5E-05	---	---	---	---	---
				Cobalt	5.99E+00	mg/kg	1.5E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.42E+04	mg/kg	3.6E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.86E+02	mg/kg	7.2E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	7.20E-01	mg/kg	1.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	3.83E+01	mg/kg	9.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.35E+00	mg/kg	3.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.81E+02	mg/kg	7.1E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								3.6E-05					---
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	1.0E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	7.10E-02	mg/kg	2.0E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-07	---	---	---	---	---
				Benzo(a)pyrene	8.75E-01	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.9E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.13E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	---	---	---	---	---
				Benzo(k)fluoranthene	8.72E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.9E-08	---	---	---	---	---
				Carbazole	1.60E-01	mg/kg	5.9E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	6.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.8E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-07	---	---	---	---	---
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	1.5E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.0E-09	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.78E+00	mg/kg	3.2E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.8E-08	---	---	---	---	---
				Chromium Total	1.47E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---

TABLE A-7.2d1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Cobalt	5.99E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.42E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.86E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	7.20E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	3.83E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.35E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.81E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								2.9E-06					---
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	7.10E-02	mg/kg	6.3E-12	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	4.9E-11	mg/m3	1.1E-04	(µg/m3)-1	2.5E-11	---	---	---	---	---
				Benzo(a)pyrene	8.75E-01	mg/kg	7.8E-11	mg/m3	1.1E-03	(µg/m3)-1	3.9E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.13E+00	mg/kg	1.0E-10	mg/m3	1.1E-04	(µg/m3)-1	5.0E-11	---	---	---	---	---
				Benzo(k)fluoranthene	8.72E-01	mg/kg	7.7E-11	mg/m3	1.1E-04	(µg/m3)-1	3.8E-11	---	---	---	---	---
				Carbazole	1.60E-01	mg/kg	1.4E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.6E-11	mg/m3	1.2E-03	(µg/m3)-1	8.4E-11	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	6.3E-11	mg/m3	1.1E-04	(µg/m3)-1	3.1E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	3.4E-12	mg/m3	5.7E-04	(µg/m3)-1	1.9E-12	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	8.9E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	3.78E+00	mg/kg	3.4E-10	mg/m3	4.3E-03	(µg/m3)-1	1.4E-09	---	---	---	---	---
				Chromium Total	1.47E+01	mg/kg	1.3E-09	mg/m3	8.4E-02	(µg/m3)-1	5.0E-07	---	---	---	---	---
				Cobalt	5.99E+00	mg/kg	5.3E-10	mg/m3	9.0E-03	(µg/m3)-1	4.8E-09	---	---	---	---	---
				Iron	1.42E+04	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.86E+02	mg/kg	2.5E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	7.20E-01	mg/kg	6.4E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Nickel	3.83E+01	mg/kg	3.4E-09	mg/m3	2.6E-04	(µg/m3)-1	8.8E-10	---	---	---	---	---
				Thallium	1.35E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.81E+02	mg/kg	2.5E-08	mg/m3	1.5E-02	(µg/m3)-1	3.7E-07	---	---	---	---	---
			Inhalation Total								8.8E-07					---
	Aggregate Soil Total										3.9E-05					---
Soil Total											3.9E-05					---
										Total of Receptor Risks Across All Media	3.9E-05				Total of Receptor Hazards Across All Media	---

TABLE A-7.2d1-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Ingestion	Dimethyl phthalate	3.70E-01	mg/kg	5.4E-10	mg/kg-day	NA	---	NA	3.8E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	1.0E-10	mg/kg-day	NA	---	NA	7.2E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	8.1E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.9E-10	5.7E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	1.3E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.3E-09	8.9E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-09	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	1.3E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	9.3E-11	8.9E-08	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	2.3E-10	mg/kg-day	NA	---	NA	1.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	2.5E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.9E-09	1.8E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	1.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.5E-10	7.2E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	5.5E-11	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-10	3.9E-09	mg/kg-day	2.0E-05	mg/kg-day	0.00019
				Metals												
				Aluminum	1.01E+04	mg/kg	1.5E-05	mg/kg-day	NA	---	NA	1.0E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0010
				Arsenic	3.78E+00	mg/kg	5.5E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.2E-09	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0013
				Chromium Total	1.47E+01	mg/kg	2.1E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.1E-08	1.5E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00050
				Cobalt	5.99E+00	mg/kg	8.7E-09	mg/kg-day	NA	---	NA	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0020
				Iron	1.42E+04	mg/kg	2.1E-05	mg/kg-day	NA	---	NA	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0021
				Manganese	2.86E+02	mg/kg	4.2E-07	mg/kg-day	NA	---	NA	2.9E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00042
				Mercury	7.20E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	7.3E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00046
				Nickel	3.83E+01	mg/kg	5.6E-08	mg/kg-day	NA	---	NA	3.9E-06	mg/kg-day	2.0E-02	mg/kg-day	0.00019
				Thallium	1.35E+00	mg/kg	2.0E-09	mg/kg-day	NA	---	NA	1.4E-07	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	4.1E-07	mg/kg-day	NA	---	NA	2.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0057
			Ingestion Total								3.3E-08					0.014
			Dermal	Dimethyl phthalate	3.70E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	3.4E-11	mg/kg-day	NA	---	NA	2.4E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	3.5E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-10	2.4E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	5.5E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.0E-09	3.8E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	7.0E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.1E-10	4.9E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	5.4E-10	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.0E-11	3.8E-08	mg/kg-day	NA	---	NA
				Carbazole	1.60E-01	mg/kg	1.0E-10	mg/kg-day	NA	---	NA	7.0E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.1E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.0E-10	7.6E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	4.4E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.2E-10	3.1E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	2.6E-11	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.1E-11	1.8E-09	mg/kg-day	2.0E-05	mg/kg-day	0.000089

TABLE A-7.2d1-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.78E+00	mg/kg	5.4E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.2E-10	3.8E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00013
				Chromium Total	1.47E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.99E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.42E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.86E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	3.83E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.35E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	2.81E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								6.8E-09					0.00022
			Inhalation	Dimethyl phthalate	3.70E-01	mg/kg	9.0E-11	mg/m3	NA	---	NA	6.3E-09	mg/m3	NA	---	NA
				Di-n-octyl phthalate	7.10E-02	mg/kg	1.7E-11	mg/m3	NA	---	NA	1.2E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.57E-01	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-11	9.5E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.75E-01	mg/kg	2.1E-10	mg/m3	1.1E-03	(µg/m3)-1	2.4E-10	1.5E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.13E+00	mg/kg	2.8E-10	mg/m3	1.1E-04	(µg/m3)-1	3.0E-11	1.9E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.72E-01	mg/kg	2.1E-10	mg/m3	1.1E-04	(µg/m3)-1	2.3E-11	1.5E-08	mg/m3	NA	---	NA
				Carbazole	1.60E-01	mg/kg	3.9E-11	mg/m3	NA	---	NA	2.7E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.3E-11	mg/m3	1.2E-03	(µg/m3)-1	5.1E-11	3.0E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.09E-01	mg/kg	1.7E-10	mg/m3	1.1E-04	(µg/m3)-1	1.9E-11	1.2E-08	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	3.80E-02	mg/kg	9.3E-12	mg/m3	5.7E-04	(µg/m3)-1	5.3E-12	6.5E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	2.5E-06	mg/m3	NA	---	NA	1.7E-04	mg/m3	5.0E-03	mg/m3	0.034
				Arsenic	3.78E+00	mg/kg	9.2E-10	mg/m3	4.3E-03	(µg/m3)-1	4.0E-09	6.5E-08	mg/m3	1.5E-05	mg/m3	0.0043
				Chromium Total	1.47E+01	mg/kg	3.6E-09	mg/m3	8.4E-02	(µg/m3)-1	3.0E-07	2.5E-07	mg/m3	1.0E-04	mg/m3	0.0025
				Cobalt	5.99E+00	mg/kg	1.5E-09	mg/m3	9.0E-03	(µg/m3)-1	1.3E-08	1.0E-07	mg/m3	6.0E-06	mg/m3	0.017
				Iron	1.42E+04	mg/kg	3.5E-06	mg/m3	NA	---	NA	2.4E-04	mg/m3	NA	---	NA
				Manganese	2.86E+02	mg/kg	7.0E-08	mg/m3	NA	---	NA	4.9E-06	mg/m3	5.0E-05	mg/m3	0.098
				Mercury	7.20E-01	mg/kg	1.8E-10	mg/m3	NA	---	NA	1.2E-08	mg/m3	3.0E-04	mg/m3	0.000041
				Nickel	3.83E+01	mg/kg	9.3E-09	mg/m3	2.6E-04	(µg/m3)-1	2.4E-09	6.5E-07	mg/m3	9.0E-05	mg/m3	0.0073
				Thallium	1.35E+00	mg/kg	3.3E-10	mg/m3	NA	---	NA	2.3E-08	mg/m3	NA	---	NA
				Vanadium	2.81E+02	mg/kg	6.9E-08	mg/m3	1.5E-02	(µg/m3)-1	1.0E-06	4.8E-06	mg/m3	5.6E-05	mg/m3	0.086
			Inhalation Total								1.4E-06					0.25
	Aggregate Soil Total										1.4E-06					0.26
Soil Total											1.4E-06					0.26
										Total of Receptor Risks Across All Media	1.4E-06				Total of Receptor Hazards Across All Media	0.26

TABLE A-7.1d3-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D3	Ingestion	PAHs												
				Benzo(a)anthracene	3.80E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.7E-07	3.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.80E+00	mg/kg	1.3E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.7E-06	3.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	5.60E+00	mg/kg	2.0E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-06	5.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.60E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	9.2E-08	3.5E-06	mg/kg-day	NA	---	NA
				Carbazole	1.90E-01	mg/kg	6.6E-08	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.10E-01	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.9E-07	3.0E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.60E-01	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-07	8.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	3.6E-03	mg/kg-day	NA	---	NA	1.0E-02	mg/kg-day	1.0E+00	mg/kg-day	0.010
				Arsenic	1.18E+01	mg/kg	4.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.2E-06	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.038
				Chromium Total	2.95E+01	mg/kg	1.0E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	5.2E-06	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0096
				Cobalt	5.30E+00	mg/kg	1.9E-06	mg/kg-day	NA	---	NA	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Iron	1.30E+04	mg/kg	4.5E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.018
				Lead	5.36E+02	mg/kg	1.9E-04	mg/kg-day	NA	---	NA	5.2E-04	mg/kg-day	NA	---	NA
				Manganese	2.02E+02	mg/kg	7.1E-05	mg/kg-day	NA	---	NA	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0028
				Vanadium	5.36E+01	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	5.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.010
			Ingestion Total								2.5E-05					0.11
			Dermal	PAHs												
				Benzo(a)anthracene	3.80E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.3E-07	3.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.80E+00	mg/kg	1.1E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.3E-06	3.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	5.60E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-06	4.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.60E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	7.9E-08	3.0E-06	mg/kg-day	NA	---	NA
				Carbazole	1.90E-01	mg/kg	5.7E-08	mg/kg-day	NA	---	NA	1.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.10E-01	mg/kg	9.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.8E-07	2.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.60E-01	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-07	7.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	1.18E+01	mg/kg	8.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-06	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0076
				Chromium Total	2.95E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.30E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	5.36E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.02E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	5.36E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.3E-05					0.0076

TABLE A-7.1d3-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D3	Inhalation	PAHs												
				Benzo(a)anthracene	3.80E+00	mg/kg	2.2E-10	mg/m3	1.1E-04	(µg/m3)-1	2.5E-11	6.2E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.80E+00	mg/kg	2.2E-10	mg/m3	1.1E-03	(µg/m3)-1	2.5E-10	6.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	5.60E+00	mg/kg	3.3E-10	mg/m3	1.1E-04	(µg/m3)-1	3.6E-11	9.2E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	3.60E+00	mg/kg	2.1E-10	mg/m3	1.1E-04	(µg/m3)-1	2.3E-11	5.9E-10	mg/m3	NA	---	NA
				Carbazole	1.90E-01	mg/kg	1.1E-11	mg/m3	NA	---	NA	3.1E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.10E-01	mg/kg	1.8E-11	mg/m3	1.2E-03	(µg/m3)-1	2.2E-11	5.1E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.60E-01	mg/kg	5.0E-11	mg/m3	1.1E-04	(µg/m3)-1	5.6E-12	1.4E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	6.1E-07	mg/m3	NA	---	NA	1.7E-06	mg/m3	5.0E-03	mg/m3	0.00034
				Arsenic	1.18E+01	mg/kg	6.9E-10	mg/m3	4.3E-03	(µg/m3)-1	3.0E-09	1.9E-09	mg/m3	1.5E-05	mg/m3	0.00013
				Chromium Total	2.95E+01	mg/kg	1.7E-09	mg/m3	8.4E-02	(µg/m3)-1	1.5E-07	4.8E-09	mg/m3	1.0E-04	mg/m3	0.000048
				Cobalt	5.30E+00	mg/kg	3.1E-10	mg/m3	9.0E-03	(µg/m3)-1	2.8E-09	8.7E-10	mg/m3	6.0E-06	mg/m3	0.00015
				Iron	1.30E+04	mg/kg	7.6E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
				Lead	5.36E+02	mg/kg	3.1E-08	mg/m3	NA	---	NA	8.8E-08	mg/m3	NA	---	NA
				Manganese	2.02E+02	mg/kg	1.2E-08	mg/m3	NA	---	NA	3.3E-08	mg/m3	5.0E-05	mg/m3	0.00066
				Vanadium	5.36E+01	mg/kg	3.1E-09	mg/m3	1.5E-02	(µg/m3)-1	4.7E-08	8.8E-09	mg/m3	3.9E-06	mg/m3	0.0022
			Inhalation Total								2.0E-07					0.0036
	Surface Soil Total										3.7E-05					0.12
Soil Total											3.7E-05					0.12
										Total of Receptor Risks Across All Media	3.7E-05				Total of Receptor Hazards Across All Media	0.12

TABLE A-7.2d3-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Ingestion	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.8E-07	3.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	1.2E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.7E-06	3.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	4.8E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	9.7E-07	mg/kg-day	NA	---	NA	2.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	7.8E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.7E-08	2.2E-06	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	7.0E-08	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	4.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.9E-06	1.1E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	8.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.0E-07	2.3E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	3.1E-03	mg/kg-day	NA	---	NA	8.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0088
				Arsenic	7.53E+00	mg/kg	2.6E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.9E-06	7.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.025
				Chromium Total	1.67E+01	mg/kg	5.8E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.9E-06	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0055
				Cobalt	5.43E+00	mg/kg	1.9E-06	mg/kg-day	NA	---	NA	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.018
				Iron	1.33E+04	mg/kg	4.6E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.019
				Lead	2.55E+02	mg/kg	8.9E-05	mg/kg-day	NA	---	NA	2.5E-04	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	8.4E-05	mg/kg-day	NA	---	NA	2.3E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0034
				Vanadium	3.23E+01	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	3.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0063
			Ingestion Total								2.1E-05					0.085
			Dermal	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	9.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.7E-07	2.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	1.0E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.4E-06	2.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	4.2E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	8.4E-07	mg/kg-day	NA	---	NA	2.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	6.7E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.9E-08	1.9E-06	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	6.0E-08	mg/kg-day	NA	---	NA	1.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.5E-06	9.7E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	7.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.2E-07	2.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.53E+00	mg/kg	5.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.8E-07	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0049
				Chromium Total	1.67E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.33E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.23E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.3E-05					0.0049

TABLE A-7.2d3-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Inhalation	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	1.8E-10	mg/m3	1.1E-04	(µg/m3)-1	2.0E-11	5.0E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	2.0E-10	mg/m3	1.1E-03	(µg/m3)-1	2.2E-10	5.6E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	2.9E-10	mg/m3	1.1E-04	(µg/m3)-1	3.2E-11	8.1E-10	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	1.6E-10	mg/m3	NA	---	NA	4.6E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	1.3E-10	mg/m3	1.1E-04	(µg/m3)-1	1.4E-11	3.6E-10	mg/m3	NA	---	NA
				Carbazole	1.99E-01	mg/kg	1.2E-11	mg/m3	NA	---	NA	3.3E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	6.8E-11	mg/m3	1.2E-03	(µg/m3)-1	8.1E-11	1.9E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-11	3.9E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	5.3E-07	mg/m3	NA	---	NA	1.5E-06	mg/m3	5.0E-03	mg/m3	0.00029
				Arsenic	7.53E+00	mg/kg	4.4E-10	mg/m3	4.3E-03	(µg/m3)-1	1.9E-09	1.2E-09	mg/m3	1.5E-05	mg/m3	0.000082
				Chromium Total	1.67E+01	mg/kg	9.8E-10	mg/m3	8.4E-02	(µg/m3)-1	8.3E-08	2.8E-09	mg/m3	1.0E-04	mg/m3	0.000028
				Cobalt	5.43E+00	mg/kg	3.2E-10	mg/m3	9.0E-03	(µg/m3)-1	2.9E-09	8.9E-10	mg/m3	6.0E-06	mg/m3	0.00015
				Iron	1.33E+04	mg/kg	7.8E-07	mg/m3	NA	---	NA	2.2E-06	mg/m3	NA	---	NA
				Lead	2.55E+02	mg/kg	1.5E-08	mg/m3	NA	---	NA	4.2E-08	mg/m3	NA	---	NA
				Manganese	2.40E+02	mg/kg	1.4E-08	mg/m3	NA	---	NA	3.9E-08	mg/m3	5.0E-05	mg/m3	0.00079
				Vanadium	3.23E+01	mg/kg	1.9E-09	mg/m3	1.5E-02	(µg/m3)-1	2.8E-08	5.3E-09	mg/m3	3.9E-06	mg/m3	0.0014
			Inhalation Total								1.2E-07					0.0027
	Aggregate Soil Total										3.4E-05					0.092
Soil Total											3.4E-05					0.092
										Total of Receptor Risks Across All Media	3.4E-05				Total of Receptor Hazards Across All Media	0.092

TABLE A-7.2d3-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Ingestion	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	7.3E-08	mg/kg-day	7.3E-01	mg/kg-day	5.3E-08	5.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	8.2E-08	mg/kg-day	7.3E+00	mg/kg-day	6.0E-07	5.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	mg/kg-day	8.7E-08	8.3E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	6.7E-08	mg/kg-day	NA	---	NA	4.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-02	mg/kg-day	3.9E-09	3.7E-06	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	4.8E-09	mg/kg-day	NA	---	NA	3.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	2.8E-08	mg/kg-day	7.3E+00	mg/kg-day	2.0E-07	1.9E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	mg/kg-day	4.2E-08	4.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	2.2E-04	mg/kg-day	NA	---	NA	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	0.015
				Arsenic	7.53E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	mg/kg-day	2.7E-07	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.042
				Chromium Total	1.67E+01	mg/kg	4.0E-07	mg/kg-day	5.0E-01	mg/kg-day	2.0E-07	2.8E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0094
				Cobalt	5.43E+00	mg/kg	1.3E-07	mg/kg-day	NA	---	NA	9.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.030
				Iron	1.33E+04	mg/kg	3.2E-04	mg/kg-day	NA	---	NA	2.2E-02	mg/kg-day	7.0E-01	mg/kg-day	0.032
				Lead	2.55E+02	mg/kg	6.1E-06	mg/kg-day	NA	---	NA	4.3E-04	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	5.8E-06	mg/kg-day	NA	---	NA	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0058
				Vanadium	3.23E+01	mg/kg	7.7E-07	mg/kg-day	NA	---	NA	5.4E-05	mg/kg-day	5.0E-03	mg/kg-day	0.011
			Ingestion Total								1.5E-06					0.15
			Dermal	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	mg/kg-day	2.1E-08	2.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	mg/kg-day	2.3E-07	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	4.6E-08	mg/kg-day	7.3E-01	mg/kg-day	3.4E-08	3.2E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	2.6E-08	mg/kg-day	NA	---	NA	1.8E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-02	mg/kg-day	1.5E-09	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	1.9E-09	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	1.1E-08	mg/kg-day	7.3E+00	mg/kg-day	7.9E-08	7.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	mg/kg-day	1.6E-08	1.6E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.53E+00	mg/kg	1.6E-08	mg/kg-day	1.5E+00	mg/kg-day	2.4E-08	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0038
				Chromium Total	1.67E+01	mg/kg	NA	mg/kg-day	1.3E-02	mg/kg-day	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA

TABLE A-7.2d3-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Dermal	Cobalt	5.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.33E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.23E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.1E-07					0.0038
			Inhalation	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	3.7E-09	mg/m3	1.1E-04	(µg/m3)-1	4.1E-10	2.6E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	4.2E-09	mg/m3	1.1E-03	(µg/m3)-1	4.6E-09	2.9E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	6.0E-09	mg/m3	1.1E-04	(µg/m3)-1	6.7E-10	4.2E-07	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	3.4E-09	mg/m3	NA	---	NA	2.4E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	2.7E-09	mg/m3	1.1E-04	(µg/m3)-1	3.0E-10	1.9E-07	mg/m3	NA	---	NA
				Carbazole	1.99E-01	mg/kg	2.4E-10	mg/m3	NA	---	NA	1.7E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	1.4E-09	mg/m3	1.2E-03	(µg/m3)-1	1.7E-09	9.8E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	2.9E-09	mg/m3	1.1E-04	(µg/m3)-1	3.2E-10	2.0E-07	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	1.1E-05	mg/m3	NA	---	NA	7.7E-04	mg/m3	5.0E-03	mg/m3	0.15
				Arsenic	7.53E+00	mg/kg	9.2E-09	mg/m3	4.3E-03	(µg/m3)-1	4.0E-08	6.4E-07	mg/m3	1.5E-05	mg/m3	0.043
				Chromium Total	1.67E+01	mg/kg	2.0E-08	mg/m3	8.4E-02	(µg/m3)-1	1.7E-06	1.4E-06	mg/m3	1.0E-04	mg/m3	0.014
				Cobalt	5.43E+00	mg/kg	6.6E-09	mg/m3	9.0E-03	(µg/m3)-1	6.0E-08	4.6E-07	mg/m3	6.0E-06	mg/m3	0.077
				Iron	1.33E+04	mg/kg	1.6E-05	mg/m3	NA	---	NA	1.1E-03	mg/m3	NA	---	NA
				Lead	2.55E+02	mg/kg	3.1E-07	mg/m3	NA	---	NA	2.2E-05	mg/m3	NA	---	NA
				Manganese	2.40E+02	mg/kg	2.9E-07	mg/m3	NA	---	NA	2.1E-05	mg/m3	5.0E-05	mg/m3	0.41
				Vanadium	3.23E+01	mg/kg	3.9E-08	mg/m3	1.5E-02	(µg/m3)-1	5.9E-07	2.8E-06	mg/m3	5.6E-05	mg/m3	0.049
			Inhalation Total								2.4E-06					0.75
	Aggregate Soil Total										4.3E-06					0.90
Soil Total											4.3E-06					0.90
										Total of Receptor Risks Across All Media	4.3E-06				Total of Receptor Hazards Across All Media	0.90

TABLE A-7.1d3-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D3	Ingestion	PAHs												
				Benzo(a)anthracene	3.80E+00	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-07	1.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.80E+00	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.5E-06	1.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	5.60E+00	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-07	2.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.60E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.4E-08	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	1.90E-01	mg/kg	1.0E-08	mg/kg-day	NA	---	NA	8.1E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.10E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-07	1.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.60E-01	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-08	3.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	5.7E-04	mg/kg-day	NA	---	NA	4.5E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0045
				Arsenic	1.18E+01	mg/kg	6.5E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.8E-07	5.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Chromium Total	2.95E+01	mg/kg	1.6E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	8.1E-07	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0042
				Cobalt	5.30E+00	mg/kg	2.9E-07	mg/kg-day	NA	---	NA	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0076
				Iron	1.30E+04	mg/kg	7.2E-04	mg/kg-day	NA	---	NA	5.6E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0080
				Lead	5.36E+02	mg/kg	3.0E-05	mg/kg-day	NA	---	NA	2.3E-04	mg/kg-day	NA	---	NA
				Manganese	2.02E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	8.7E-05	mg/kg-day	7.0E-02	mg/kg-day	0.0012
				Vanadium	5.36E+01	mg/kg	3.0E-06	mg/kg-day	NA	---	NA	2.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0046
			Ingestion Total								3.9E-06					0.047
			Dermal	PAHs												
				Benzo(a)anthracene	3.80E+00	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-08	2.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.80E+00	mg/kg	3.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.6E-07	2.8E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	5.60E+00	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-08	4.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.60E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.5E-09	2.6E-07	mg/kg-day	NA	---	NA
				Carbazole	1.90E-01	mg/kg	1.8E-09	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.10E-01	mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-08	2.3E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.60E-01	mg/kg	8.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.9E-09	6.3E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	1.18E+01	mg/kg	2.6E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.9E-08	2.0E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00067
				Chromium Total	2.95E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.30E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	5.36E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.02E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	5.36E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.0E-07					0.00067

TABLE A-7.1d3-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area D3	Inhalation	PAHs												
				Benzo(a)anthracene	3.80E+00	mg/kg	7.0E-11	mg/m3	1.1E-04	(µg/m3)-1	7.7E-12	5.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.80E+00	mg/kg	7.0E-11	mg/m3	1.1E-03	(µg/m3)-1	7.7E-11	5.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	5.60E+00	mg/kg	1.0E-10	mg/m3	1.1E-04	(µg/m3)-1	1.1E-11	8.1E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	3.60E+00	mg/kg	6.7E-11	mg/m3	1.1E-04	(µg/m3)-1	7.3E-12	5.2E-10	mg/m3	NA	---	NA
				Carbazole	1.90E-01	mg/kg	3.5E-12	mg/m3	NA	---	NA	2.7E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.10E-01	mg/kg	5.7E-12	mg/m3	1.2E-03	(µg/m3)-1	6.9E-12	4.5E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.60E-01	mg/kg	1.6E-11	mg/m3	1.1E-04	(µg/m3)-1	1.8E-12	1.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	1.9E-07	mg/m3	NA	---	NA	1.5E-06	mg/m3	5.0E-03	mg/m3	0.00030
				Arsenic	1.18E+01	mg/kg	2.2E-10	mg/m3	4.3E-03	(µg/m3)-1	9.4E-10	1.7E-09	mg/m3	1.5E-05	mg/m3	0.00011
				Chromium Total	2.95E+01	mg/kg	5.5E-10	mg/m3	8.4E-02	(µg/m3)-1	4.6E-08	4.2E-09	mg/m3	1.0E-04	mg/m3	0.000042
				Cobalt	5.30E+00	mg/kg	9.8E-11	mg/m3	9.0E-03	(µg/m3)-1	8.8E-10	7.6E-10	mg/m3	6.0E-06	mg/m3	0.00013
				Iron	1.30E+04	mg/kg	2.4E-07	mg/m3	NA	---	NA	1.9E-06	mg/m3	NA	---	NA
				Lead	5.36E+02	mg/kg	9.9E-09	mg/m3	NA	---	NA	7.7E-08	mg/m3	NA	---	NA
				Manganese	2.02E+02	mg/kg	3.7E-09	mg/m3	NA	---	NA	2.9E-08	mg/m3	5.0E-05	mg/m3	0.00058
				Vanadium	5.36E+01	mg/kg	9.9E-10	mg/m3	1.5E-02	(µg/m3)-1	1.5E-08	7.7E-09	mg/m3	3.9E-06	mg/m3	0.0020
			Inhalation Total								6.3E-08					0.0031
	Surface Soil Total										4.3E-06					0.051
Soil Total											4.3E-06					0.051
										Total of Receptor Risks Across All Media	4.3E-06				Total of Receptor Hazards Across All Media	0.051

TABLE A-7.2d3-6 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Ingestion	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-07	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	1.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-06	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	1.5E-07	mg/kg-day	NA	---	NA	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.9E-09	9.5E-07	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	8.5E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	6.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.6E-07	4.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.5E-08	1.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	4.9E-04	mg/kg-day	NA	---	NA	3.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0038
				Arsenic	7.53E+00	mg/kg	4.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.2E-07	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.011
				Chromium Total	1.67E+01	mg/kg	9.2E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.6E-07	7.2E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0024
				Cobalt	5.43E+00	mg/kg	3.0E-07	mg/kg-day	NA	---	NA	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0078
				Iron	1.33E+04	mg/kg	7.3E-04	mg/kg-day	NA	---	NA	5.7E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0081
				Lead	2.55E+02	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	1.1E-04	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	1.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0015
				Vanadium	3.23E+01	mg/kg	1.8E-06	mg/kg-day	NA	---	NA	1.4E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0027
			Ingestion Total								3.3E-06					0.037
			Dermal	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	2.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-08	2.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-07	2.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-08	3.6E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	2.6E-08	mg/kg-day	NA	---	NA	2.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.5E-09	1.6E-07	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	1.9E-09	mg/kg-day	NA	---	NA	1.5E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.9E-08	8.5E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-08	1.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.53E+00	mg/kg	1.6E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.5E-08	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00043
				Chromium Total	1.67E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.33E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.23E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.1E-07					0.00043

TABLE A-7.2d3-6 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Inhalation	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	5.7E-11	mg/m3	1.1E-04	(µg/m3)-1	6.2E-12	4.4E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	6.3E-11	mg/m3	1.1E-03	(µg/m3)-1	6.9E-11	4.9E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	9.2E-11	mg/m3	1.1E-04	(µg/m3)-1	1.0E-11	7.1E-10	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	5.2E-11	mg/m3	NA	---	NA	4.0E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	4.1E-11	mg/m3	1.1E-04	(µg/m3)-1	4.5E-12	3.2E-10	mg/m3	NA	---	NA
				Carbazole	1.99E-01	mg/kg	3.7E-12	mg/m3	NA	---	NA	2.9E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	2.1E-11	mg/m3	1.2E-03	(µg/m3)-1	2.6E-11	1.7E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	4.4E-11	mg/m3	1.1E-04	(µg/m3)-1	4.8E-12	3.4E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	1.7E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00026
				Arsenic	7.53E+00	mg/kg	1.4E-10	mg/m3	4.3E-03	(µg/m3)-1	6.0E-10	1.1E-09	mg/m3	1.5E-05	mg/m3	0.000072
				Chromium Total	1.67E+01	mg/kg	3.1E-10	mg/m3	8.4E-02	(µg/m3)-1	2.6E-08	2.4E-09	mg/m3	1.0E-04	mg/m3	0.000024
				Cobalt	5.43E+00	mg/kg	1.0E-10	mg/m3	9.0E-03	(µg/m3)-1	9.0E-10	7.8E-10	mg/m3	6.0E-06	mg/m3	0.00013
				Iron	1.33E+04	mg/kg	2.5E-07	mg/m3	NA	---	NA	1.9E-06	mg/m3	NA	---	NA
				Lead	2.55E+02	mg/kg	4.7E-09	mg/m3	NA	---	NA	3.7E-08	mg/m3	NA	---	NA
				Manganese	2.40E+02	mg/kg	4.4E-09	mg/m3	NA	---	NA	3.5E-08	mg/m3	5.0E-05	mg/m3	0.00069
				Vanadium	3.23E+01	mg/kg	6.0E-10	mg/m3	1.5E-02	(µg/m3)-1	9.0E-09	4.6E-09	mg/m3	3.9E-06	mg/m3	0.0012
			Inhalation Total								3.7E-08					0.0024
	Aggregate Soil Total										3.8E-06					0.040
Soil Total											3.8E-06					0.040
										Total of Receptor Risks Across All Media	3.8E-06				Total of Receptor Hazards Across All Media	0.040

TABLE A-7.2d3-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Ingestion	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	4.4E-09	mg/kg-day	7.3E-01	mg/kg-day	3.2E-09	3.1E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	4.9E-09	mg/kg-day	7.3E+00	mg/kg-day	3.6E-08	3.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	7.2E-09	mg/kg-day	7.3E-01	mg/kg-day	5.3E-09	5.0E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	4.1E-09	mg/kg-day	NA	---	NA	2.8E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	3.2E-09	mg/kg-day	7.3E-02	mg/kg-day	2.4E-10	2.3E-07	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	2.9E-10	mg/kg-day	NA	---	NA	2.0E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	1.7E-09	mg/kg-day	7.3E+00	mg/kg-day	1.2E-08	1.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	3.4E-09	mg/kg-day	7.3E-01	mg/kg-day	2.5E-09	2.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	9.1E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00091
				Arsenic	7.53E+00	mg/kg	1.1E-08	mg/kg-day	1.5E+00	mg/kg-day	1.6E-08	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0026
				Chromium Total	1.67E+01	mg/kg	2.4E-08	mg/kg-day	5.0E-01	mg/kg-day	1.2E-08	1.7E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00057
				Cobalt	5.43E+00	mg/kg	7.9E-09	mg/kg-day	NA	---	NA	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0018
				Iron	1.33E+04	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0019
				Lead	2.55E+02	mg/kg	3.7E-07	mg/kg-day	NA	---	NA	2.6E-05	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	3.5E-07	mg/kg-day	NA	---	NA	2.4E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00035
				Vanadium	3.23E+01	mg/kg	4.7E-08	mg/kg-day	NA	---	NA	3.3E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00065
			Ingestion Total								8.8E-08					0.0088
			Dermal	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	1.9E-09	mg/kg-day	7.3E-01	mg/kg-day	1.4E-09	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	2.1E-09	mg/kg-day	7.3E+00	mg/kg-day	1.5E-08	1.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	3.1E-09	mg/kg-day	7.3E-01	mg/kg-day	2.3E-09	2.2E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	1.4E-09	mg/kg-day	7.3E-02	mg/kg-day	1.0E-10	9.7E-08	mg/kg-day	NA	---	NA
				Carbazole	1.99E-01	mg/kg	1.2E-10	mg/kg-day	NA	---	NA	8.7E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	7.2E-10	mg/kg-day	7.3E+00	mg/kg-day	5.2E-09	5.0E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	1.5E-09	mg/kg-day	7.3E-01	mg/kg-day	1.1E-09	1.0E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.53E+00	mg/kg	1.1E-09	mg/kg-day	1.5E+00	mg/kg-day	1.6E-09	7.6E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00025
				Chromium Total	1.67E+01	mg/kg	NA	mg/kg-day	1.3E-02	mg/kg-day	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA

TABLE A-7.2d3-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	Dermal	Cobalt	5.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.33E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.40E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.23E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								2.7E-08					0.00025
			Inhalation	PAHs												
				Benzo(a)anthracene	3.06E+00	mg/kg	7.5E-10	mg/m3	1.1E-04	(µg/m3)-1	8.2E-11	5.2E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.40E+00	mg/kg	8.3E-10	mg/m3	1.1E-03	(µg/m3)-1	9.1E-10	5.8E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	4.95E+00	mg/kg	1.2E-09	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	8.5E-08	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	2.79E+00	mg/kg	6.8E-10	mg/m3	NA	---	NA	4.8E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.22E+00	mg/kg	5.4E-10	mg/m3	1.1E-04	(µg/m3)-1	6.0E-11	3.8E-08	mg/m3	NA	---	NA
				Carbazole	1.99E-01	mg/kg	4.9E-11	mg/m3	NA	---	NA	3.4E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.15E+00	mg/kg	2.8E-10	mg/m3	1.2E-03	(µg/m3)-1	3.4E-10	2.0E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	5.8E-10	mg/m3	1.1E-04	(µg/m3)-1	6.4E-11	4.1E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.97E+03	mg/kg	2.2E-06	mg/m3	NA	---	NA	1.5E-04	mg/m3	5.0E-03	mg/m3	0.031
				Arsenic	7.53E+00	mg/kg	1.8E-09	mg/m3	4.3E-03	(µg/m3)-1	7.9E-09	1.3E-07	mg/m3	1.5E-05	mg/m3	0.0086
				Chromium Total	1.67E+01	mg/kg	4.1E-09	mg/m3	8.4E-02	(µg/m3)-1	3.4E-07	2.9E-07	mg/m3	1.0E-04	mg/m3	0.0029
				Cobalt	5.43E+00	mg/kg	1.3E-09	mg/m3	9.0E-03	(µg/m3)-1	1.2E-08	9.3E-08	mg/m3	6.0E-06	mg/m3	0.015
				Iron	1.33E+04	mg/kg	3.2E-06	mg/m3	NA	---	NA	2.3E-04	mg/m3	NA	---	NA
				Lead	2.55E+02	mg/kg	6.2E-08	mg/m3	NA	---	NA	4.4E-06	mg/m3	NA	---	NA
				Manganese	2.40E+02	mg/kg	5.9E-08	mg/m3	NA	---	NA	4.1E-06	mg/m3	5.0E-05	mg/m3	0.082
				Vanadium	3.23E+01	mg/kg	7.9E-09	mg/m3	1.5E-02	(µg/m3)-1	1.2E-07	5.5E-07	mg/m3	5.6E-05	mg/m3	0.0099
			Inhalation Total								4.8E-07					0.15
	Aggregate Soil Total										6.0E-07					0.16
Soil Total											6.0E-07					0.16
										Total of Receptor Risks Across All Media	6.0E-07				Total of Receptor Hazards Across All Media	0.16

TABLE A-7.1e1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	5.6E-08	mg/kg-day	NA	---	NA	1.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	8.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.2E-07	2.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	7.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.1E-06	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-07	1.4E-06	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	1.7E-07	mg/kg-day	NA	---	NA	5.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	8.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.0E-07	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	4.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.9E-07	1.2E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	3.1E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.2E-08	9.1E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0045
				Metals												
				Aluminum	7.99E+03	mg/kg	3.8E-03	mg/kg-day	NA	---	NA	1.1E-02	mg/kg-day	1.0E+00	mg/kg-day	0.011
				Arsenic	3.50E+00	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.5E-06	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.016
				Chromium Total	1.69E+01	mg/kg	7.9E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.0E-06	2.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0077
				Cobalt	4.74E+00	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	6.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.022
				Iron	1.18E+04	mg/kg	5.5E-03	mg/kg-day	NA	---	NA	1.6E-02	mg/kg-day	7.0E-01	mg/kg-day	0.023
				Manganese	2.66E+02	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	3.6E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0052
				Vanadium	3.64E+01	mg/kg	1.7E-05	mg/kg-day	NA	---	NA	5.0E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0099
			Ingestion Total								1.4E-05					0.099
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	2.2E-08	mg/kg-day	NA	---	NA	6.6E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.2E-07	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	3.6E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.7E-06	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-07	7.4E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	9.0E-08	mg/kg-day	NA	---	NA	2.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-07	1.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-07	6.1E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.5E-08	5.1E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0025
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	2.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.0E-07	5.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0019
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.0E-06					0.0044

TABLE A-7.1e1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	2.8E-11	mg/m3	NA	---	NA	8.3E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	4.3E-10	mg/m3	1.1E-04	(µg/m3)-1	4.7E-11	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	3.5E-10	mg/m3	1.1E-03	(µg/m3)-1	3.9E-10	1.0E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	2.5E-10	mg/m3	1.1E-04	(µg/m3)-1	2.7E-11	7.2E-10	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	8.8E-11	mg/m3	NA	---	NA	2.6E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.1E-11	mg/m3	1.2E-03	(µg/m3)-1	5.0E-11	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	2.0E-10	mg/m3	1.1E-04	(µg/m3)-1	2.2E-11	5.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.6E-11	mg/m3	5.7E-04	(µg/m3)-1	9.0E-12	4.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	1.9E-06	mg/m3	NA	---	NA	5.5E-06	mg/m3	5.0E-03	mg/m3	0.0011
				Arsenic	3.50E+00	mg/kg	8.3E-10	mg/m3	4.3E-03	(µg/m3)-1	3.6E-09	2.4E-09	mg/m3	1.5E-05	mg/m3	0.00016
				Chromium Total	1.69E+01	mg/kg	4.0E-09	mg/m3	8.4E-02	(µg/m3)-1	3.4E-07	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	4.74E+00	mg/kg	1.1E-09	mg/m3	9.0E-03	(µg/m3)-1	1.0E-08	3.3E-09	mg/m3	6.0E-06	mg/m3	0.00054
				Iron	1.18E+04	mg/kg	2.8E-06	mg/m3	NA	---	NA	8.1E-06	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	6.3E-08	mg/m3	NA	---	NA	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Vanadium	3.64E+01	mg/kg	8.6E-09	mg/m3	1.5E-02	(µg/m3)-1	1.3E-07	2.5E-08	mg/m3	3.9E-06	mg/m3	0.0064
			Inhalation Total								4.8E-07					0.012
	Surface Soil Total										1.8E-05					0.12
Soil Total											1.8E-05					0.12
										Total of Receptor Risks Across All Media	1.8E-05				Total of Receptor Hazards Across All Media	0.12

TABLE A-7.1e1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	---	---	---	---	---	2.3E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	---	---	---	---	---	1.9E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	---	---	---	---	---	4.7E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	2.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	---	---	---	---	---	1.1E-05	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	---	---	---	---	---	8.5E-07	mg/kg-day	2.0E-05	mg/kg-day	0.042
				Metals												
				Aluminum	7.99E+03	mg/kg	---	---	---	---	---	1.0E-01	mg/kg-day	1.0E+00	mg/kg-day	0.10
				Arsenic	3.50E+00	mg/kg	---	---	---	---	---	4.5E-05	mg/kg-day	3.0E-04	mg/kg-day	0.15
				Chromium Total	1.69E+01	mg/kg	---	---	---	---	---	2.2E-04	mg/kg-day	3.0E-03	mg/kg-day	0.072
				Cobalt	4.74E+00	mg/kg	---	---	---	---	---	6.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.20
				Iron	1.18E+04	mg/kg	---	---	---	---	---	1.5E-01	mg/kg-day	7.0E-01	mg/kg-day	0.22
				Manganese	2.66E+02	mg/kg	---	---	---	---	---	3.4E-03	mg/kg-day	7.0E-02	mg/kg-day	0.049
				Vanadium	3.64E+01	mg/kg	---	---	---	---	---	4.7E-04	mg/kg-day	5.0E-03	mg/kg-day	0.092
			Ingestion Total								---					0.92
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	---	---	---	---	---	4.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	---	---	---	---	---	8.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	---	---	---	---	---	7.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	8.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	---	---	---	---	---	4.0E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	---	---	---	---	---	3.3E-07	mg/kg-day	2.0E-05	mg/kg-day	0.017
				Metals												
				Aluminum	7.99E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	---	---	---	---	---	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.013
				Chromium Total	1.69E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.66E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.029
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	---	---	---	---	---	8.3E-11	mg/m3	NA	---	NA

TABLE A-7.1e1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Inhalation	PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	---	---	---	---	---	1.0E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	---	---	---	---	---	7.2E-10	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	---	---	---	---	---	5.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	---	---	---	---	---	4.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	---	---	---	---	---	5.5E-06	mg/m3	5.0E-03	mg/m3	0.0011
				Arsenic	3.50E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.5E-05	mg/m3	0.00016
				Chromium Total	1.69E+01	mg/kg	---	---	---	---	---	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	4.74E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	6.0E-06	mg/m3	0.00054
				Iron	1.18E+04	mg/kg	---	---	---	---	---	8.1E-06	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	---	---	---	---	---	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Vanadium	3.64E+01	mg/kg	---	---	---	---	---	2.5E-08	mg/m3	3.9E-06	mg/m3	0.0064
			Inhalation Total								---					0.012
	Surface Soil Total										---					0.96
Soil Total											---					0.96
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.96

TABLE A-7.1e1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.9E-06	---	---	---	---	---
				Benzo(a)pyrene	1.50E+00	mg/kg	2.3E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.3E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.04E+00	mg/kg	1.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.1E-06	---	---	---	---	---
				Carbazole	3.70E-01	mg/kg	5.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.6E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.2E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.0E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.1E-07	---	---	---	---	---
				Metals												
				Aluminum	7.99E+03	mg/kg	1.3E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.50E+00	mg/kg	5.5E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.2E-06	---	---	---	---	---
				Chromium Total	1.69E+01	mg/kg	2.6E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	5.7E-05	---	---	---	---	---
				Cobalt	4.74E+00	mg/kg	7.4E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.18E+04	mg/kg	1.8E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.66E+02	mg/kg	4.2E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.64E+01	mg/kg	5.7E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.7E-04					---
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	5.9E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-06	---	---	---	---	---
				Benzo(a)pyrene	1.50E+00	mg/kg	9.6E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.8E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.04E+00	mg/kg	6.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-06	---	---	---	---	---
				Carbazole	3.70E-01	mg/kg	2.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.3E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	5.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	4.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	9.2E-08	---	---	---	---	---
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.50E+00	mg/kg	5.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.8E-07	---	---	---	---	---
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								3.9E-05					---
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	3.6E-11	mg/m3	NA	---	NA	---	---	---	---	---

TABLE A-7.1e1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Inhalation	PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	5.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	---	---	---	---	---
				Benzo(a)pyrene	1.50E+00	mg/kg	4.4E-10	mg/m3	1.1E-03	(µg/m3)-1	1.2E-09	---	---	---	---	---
				Benzo(b)fluoranthene	1.04E+00	mg/kg	3.1E-10	mg/m3	1.1E-04	(µg/m3)-1	8.5E-11	---	---	---	---	---
				Carbazole	3.70E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	5.2E-11	mg/m3	1.2E-03	(µg/m3)-1	1.6E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	2.5E-10	mg/m3	1.1E-04	(µg/m3)-1	7.0E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	2.0E-11	mg/m3	5.7E-04	(µg/m3)-1	1.1E-11	---	---	---	---	---
				Metals												
				Aluminum	7.99E+03	mg/kg	2.4E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	3.50E+00	mg/kg	1.0E-09	mg/m3	4.3E-03	(µg/m3)-1	4.5E-09	---	---	---	---	---
				Chromium Total	1.69E+01	mg/kg	5.0E-09	mg/m3	8.4E-02	(µg/m3)-1	1.1E-06	---	---	---	---	---
				Cobalt	4.74E+00	mg/kg	1.4E-09	mg/m3	9.0E-03	(µg/m3)-1	1.3E-08	---	---	---	---	---
				Iron	1.18E+04	mg/kg	3.5E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.66E+02	mg/kg	7.9E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	3.64E+01	mg/kg	1.1E-08	mg/m3	1.5E-02	(µg/m3)-1	1.6E-07	---	---	---	---	---
			Inhalation Total								1.2E-06					---
	Surface Soil Total										2.1E-04					---
Soil Total											2.1E-04					---
										Total of Receptor Risks Across All Media	2.1E-04				Total of Receptor Hazards Across All Media	---

TABLE A-7.1e1-4 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	5.9E-08	mg/kg-day	NA	---	NA	6.8E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	8.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-06	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	7.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.8E-05	8.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	5.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-06	5.9E-06	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	1.8E-07	mg/kg-day	NA	---	NA	2.1E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	8.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.3E-06	1.0E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-06	4.9E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	3.2E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.5E-08	3.8E-07	mg/kg-day	2.0E-05	mg/kg-day	0.019
				Metals												
				Aluminum	7.99E+03	mg/kg	3.9E-03	mg/kg-day	NA	---	NA	4.6E-02	mg/kg-day	1.0E+00	mg/kg-day	0.046
				Arsenic	3.50E+00	mg/kg	1.7E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.6E-06	2.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.066
				Chromium Total	1.69E+01	mg/kg	8.3E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.2E-05	9.6E-05	mg/kg-day	3.0E-03	mg/kg-day	0.032
				Cobalt	4.74E+00	mg/kg	2.3E-06	mg/kg-day	NA	---	NA	2.7E-05	mg/kg-day	3.0E-04	mg/kg-day	0.090
				Iron	1.18E+04	mg/kg	5.8E-03	mg/kg-day	NA	---	NA	6.7E-02	mg/kg-day	7.0E-01	mg/kg-day	0.096
				Manganese	2.66E+02	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	1.5E-03	mg/kg-day	7.0E-02	mg/kg-day	0.022
				Vanadium	3.64E+01	mg/kg	1.8E-05	mg/kg-day	NA	---	NA	2.1E-04	mg/kg-day	5.0E-03	mg/kg-day	0.041
			Ingestion Total								6.4E-05					0.41
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	1.6E-08	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	3.8E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-05	3.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.2E-07	2.2E-06	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	6.6E-08	mg/kg-day	NA	---	NA	7.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-06	3.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.9E-07	1.8E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.5E-08	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	0.0074
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.2E-07	1.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0056
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA

TABLE A-7.1e1-4 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Dermal	Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.4E-05					0.013
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	1.1E-12	mg/m3	NA	---	NA	1.2E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.6E-11	mg/m3	1.1E-04	(µg/m3)-1	9.3E-12	1.9E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	1.3E-11	mg/m3	1.1E-03	(µg/m3)-1	7.7E-11	1.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	9.1E-12	mg/m3	1.1E-04	(µg/m3)-1	5.3E-12	1.1E-10	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	3.3E-12	mg/m3	NA	---	NA	3.8E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.5E-12	mg/m3	1.2E-03	(µg/m3)-1	9.8E-12	1.8E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	7.5E-12	mg/m3	1.1E-04	(µg/m3)-1	4.4E-12	8.7E-11	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	5.8E-13	mg/m3	5.7E-04	(µg/m3)-1	3.3E-13	6.8E-12	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	7.0E-08	mg/m3	NA	---	NA	8.2E-07	mg/m3	5.0E-03	mg/m3	0.00016
				Arsenic	3.50E+00	mg/kg	3.1E-11	mg/m3	4.3E-03	(µg/m3)-1	1.3E-10	3.6E-10	mg/m3	1.5E-05	mg/m3	0.000024
				Chromium Total	1.69E+01	mg/kg	1.5E-10	mg/m3	8.4E-02	(µg/m3)-1	6.6E-08	1.7E-09	mg/m3	1.0E-04	mg/m3	0.000017
				Cobalt	4.74E+00	mg/kg	4.2E-11	mg/m3	9.0E-03	(µg/m3)-1	3.7E-10	4.9E-10	mg/m3	6.0E-06	mg/m3	0.000081
				Iron	1.18E+04	mg/kg	1.0E-07	mg/m3	NA	---	NA	1.2E-06	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	2.3E-09	mg/m3	NA	---	NA	2.7E-08	mg/m3	5.0E-05	mg/m3	0.00055
				Vanadium	3.64E+01	mg/kg	3.2E-10	mg/m3	1.5E-02	(µg/m3)-1	4.8E-09	3.7E-09	mg/m3	3.9E-06	mg/m3	0.00095
			Inhalation Total								7.2E-08					0.0018
	Surface Soil Total										7.8E-05					0.43
Soil Total											7.8E-05					0.43
										Total of Receptor Risks Across All Media	7.8E-05				Total of Receptor Hazards Across All Media	0.43

TABLE A-7.1e1-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	3.8E-08	mg/kg-day	NA	---	NA	1.1E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	5.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.2E-07	1.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	4.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-06	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	9.1E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	3.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.0E-07	1.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	7.5E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	2.1E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.2E-08	5.8E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0029
				Metals												
				Aluminum	7.99E+03	mg/kg	2.5E-03	mg/kg-day	NA	---	NA	7.0E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0070
				Arsenic	3.50E+00	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.7E-06	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.010
				Chromium Total	1.69E+01	mg/kg	5.3E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.7E-06	1.5E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0050
				Cobalt	4.74E+00	mg/kg	1.5E-06	mg/kg-day	NA	---	NA	4.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Iron	1.18E+04	mg/kg	3.7E-03	mg/kg-day	NA	---	NA	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.015
				Manganese	2.66E+02	mg/kg	8.4E-05	mg/kg-day	NA	---	NA	2.3E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0033
				Vanadium	3.64E+01	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	3.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0064
			Ingestion Total								9.0E-06					0.064
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	2.5E-08	mg/kg-day	NA	---	NA	7.0E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	4.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.0E-06	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	7.9E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	1.0E-07	mg/kg-day	NA	---	NA	2.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.7E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-07	1.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-07	6.4E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.9E-08	5.4E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0027
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	2.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.3E-07	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0020
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA

TABLE A-7.1e1-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Dermal	Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.4E-06					0.0047
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	6.3E-12	mg/m3	NA	---	NA	1.8E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	9.6E-11	mg/m3	1.1E-04	(µg/m3)-1	1.1E-11	2.7E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	7.9E-11	mg/m3	1.1E-03	(µg/m3)-1	8.7E-11	2.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	5.5E-11	mg/m3	1.1E-04	(µg/m3)-1	6.0E-12	1.5E-10	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	2.0E-11	mg/m3	NA	---	NA	5.5E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	9.2E-12	mg/m3	1.2E-03	(µg/m3)-1	1.1E-11	2.6E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	4.5E-11	mg/m3	1.1E-04	(µg/m3)-1	5.0E-12	1.3E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	3.5E-12	mg/m3	5.7E-04	(µg/m3)-1	2.0E-12	9.8E-12	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	4.2E-07	mg/m3	NA	---	NA	1.2E-06	mg/m3	5.0E-03	mg/m3	0.00024
				Arsenic	3.50E+00	mg/kg	1.8E-10	mg/m3	4.3E-03	(µg/m3)-1	7.9E-10	5.2E-10	mg/m3	1.5E-05	mg/m3	0.000035
				Chromium Total	1.69E+01	mg/kg	8.9E-10	mg/m3	8.4E-02	(µg/m3)-1	7.5E-08	2.5E-09	mg/m3	1.0E-04	mg/m3	0.000025
				Cobalt	4.74E+00	mg/kg	2.5E-10	mg/m3	9.0E-03	(µg/m3)-1	2.3E-09	7.0E-10	mg/m3	6.0E-06	mg/m3	0.00012
				Iron	1.18E+04	mg/kg	6.2E-07	mg/m3	NA	---	NA	1.7E-06	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	1.4E-08	mg/m3	NA	---	NA	3.9E-08	mg/m3	5.0E-05	mg/m3	0.00079
				Vanadium	3.64E+01	mg/kg	1.9E-09	mg/m3	1.5E-02	(µg/m3)-1	2.9E-08	5.4E-09	mg/m3	3.9E-06	mg/m3	0.0014
			Inhalation Total								1.1E-07					0.0026
	Surface Soil Total										1.4E-05					0.071
Soil Total											1.4E-05					0.071
										Total of Receptor Risks Across All Media	1.4E-05				Total of Receptor Hazards Across All Media	0.071

TABLE A-7.2e1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	1.6E-11	mg/kg-day	1.0E-09	mg/kg-day	0.016
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	8.0E-04	mg/kg-day	0.00064
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	7.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	6.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	9.8E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	3.8E-06	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	7.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	2.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	2.0E-05	mg/kg-day	0.0063
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	1.5E-08	mg/kg-day	3.0E-03	mg/kg-day	0.0000050
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	0.012
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	4.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0082
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	7.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.025
				Iron	1.35E+04	mg/kg	---	---	---	---	---	1.9E-02	mg/kg-day	7.0E-01	mg/kg-day	0.026
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	3.6E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0051
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0047
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	3.1E-04	mg/kg-day	5.0E-03	mg/kg-day	0.062
			Ingestion Total								---					0.18
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	1.9E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0019

TABLE A-7.2e1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	8.0E-04	mg/kg-day	0.00026
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.4E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	5.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	2.0E-06	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	7.0E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0035
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-03	mg/kg-day	NA
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0018
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.35E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0074
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	8.0E-06	mg/m3	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	7.9E-15	mg/m3	4.0E-08	mg/m3	0.00000020
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	4.9E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.9E-09	mg/m3	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA

TABLE A-7.2e1-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	6.3E-11	mg/m3	NA	---	NA
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	9.3E-11	mg/m3	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	3.0E-07	mg/m3	1.0E-01	mg/m3	0.0000030
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	5.8E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	2.3E-09	mg/m3	1.5E-05	mg/m3	0.00015
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	6.0E-06	mg/m3	0.00064
				Iron	1.35E+04	mg/kg	---	---	---	---	---	9.3E-06	mg/m3	NA	---	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0036
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	1.6E-07	mg/m3	3.9E-06	mg/m3	0.040
			Inhalation Total								---					0.046
	Aggregate Soil Total										---					0.23
Soil Total											---					0.23
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.23

TABLE A-7.2e1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	1.5E-10	mg/kg-day	1.0E-09	mg/kg-day	0.15
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	8.0E-04	mg/kg-day	0.0060
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	7.0E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	6.2E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	9.1E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	3.6E-05	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	7.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	2.7E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	2.0E-05	mg/kg-day	0.058
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	3.0E-03	mg/kg-day	0.000047
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	1.1E-01	mg/kg-day	1.0E+00	mg/kg-day	0.11
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	4.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.14
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	2.3E-04	mg/kg-day	3.0E-03	mg/kg-day	0.077
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	7.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.24
				Iron	1.35E+04	mg/kg	---	---	---	---	---	1.7E-01	mg/kg-day	7.0E-01	mg/kg-day	0.25
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	3.3E-03	mg/kg-day	7.0E-02	mg/kg-day	0.048
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	7.1E-06	mg/kg-day	1.6E-04	mg/kg-day	0.044
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	2.9E-03	mg/kg-day	5.0E-03	mg/kg-day	0.58
			Ingestion Total								---					1.7
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	1.2E-11	mg/kg-day	1.0E-09	mg/kg-day	0.012

TABLE A-7.2e1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	8.0E-04	mg/kg-day	0.0017
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	2.6E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	2.2E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	3.3E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	9.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	5.0E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	4.6E-07	mg/kg-day	2.0E-05	mg/kg-day	0.023
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	6.7E-07	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-03	mg/kg-day	NA
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	3.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.012
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.35E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.049
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	8.0E-06	mg/m3	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	7.9E-15	mg/m3	4.0E-08	mg/m3	0.00000020
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	4.9E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.9E-09	mg/m3	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA

TABLE A-7.2e1-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	6.3E-11	mg/m3	NA	---	NA
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	9.3E-11	mg/m3	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	3.0E-07	mg/m3	1.0E-01	mg/m3	0.0000030
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	5.8E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	2.3E-09	mg/m3	1.5E-05	mg/m3	0.00015
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	6.0E-06	mg/m3	0.00064
				Iron	1.35E+04	mg/kg	---	---	---	---	---	9.3E-06	mg/m3	NA	---	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0036
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	1.6E-07	mg/m3	3.9E-06	mg/m3	0.040
			Inhalation Total								---					0.046
	Aggregate Soil Total										---					1.8
Soil Total											---					1.8
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.8

TABLE A-7.2e1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	5.9E-07	mg/kg-day	1.1E+00	(mg/kg-day)-1	6.5E-07	---	---	---	---	---
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	5.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	5.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	3.75E-01	mg/kg	5.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	1.8E-11	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.3E-06	---	---	---	---	---
				Hexachlorobenzene	3.75E-01	mg/kg	5.9E-07	mg/kg-day	1.6E+00	(mg/kg-day)-1	9.4E-07	---	---	---	---	---
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	5.9E-07	mg/kg-day	7.0E+00	(mg/kg-day)-1	4.1E-06	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	8.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-05	---	---	---	---	---
				Benzo(a)pyrene	4.81E+00	mg/kg	7.5E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.4E-04	---	---	---	---	---
				Benzo(b)fluoranthene	7.12E+00	mg/kg	1.1E-05	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-05	---	---	---	---	---
				Benzo(k)fluoranthene	2.79E+00	mg/kg	4.4E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.4E-06	---	---	---	---	---
				Carbazole	5.47E-01	mg/kg	8.6E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.2E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	1.4E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.9E-07	---	---	---	---	---
				Aroclor-1260	1.34E-01	mg/kg	2.1E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.2E-07	---	---	---	---	---
				Vinyl chloride	1.10E-02	mg/kg	1.7E-08	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.2E-07	---	---	---	---	---
				Metals												
				Aluminum	8.40E+03	mg/kg	1.3E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.34E+00	mg/kg	5.2E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.8E-06	---	---	---	---	---
				Chromium Total	1.80E+01	mg/kg	2.8E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.0E-05	---	---	---	---	---
				Cobalt	5.54E+00	mg/kg	8.7E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.35E+04	mg/kg	2.1E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.61E+02	mg/kg	4.1E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.53E-01	mg/kg	8.7E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.28E+02	mg/kg	3.6E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								3.9E-04					---
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	NA	mg/kg-day	1.1E+00	(mg/kg-day)-1	NA	---	---	---	---	---
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	3.75E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	1.7E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.2E-07	---	---	---	---	---

TABLE A-7.2e1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	1.9E-07	mg/kg-day	1.6E+00	(mg/kg-day)-1	3.0E-07	---	---	---	---	---
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	1.9E-07	mg/kg-day	7.0E+00	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	3.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-05	---	---	---	---	---
				Benzo(a)pyrene	4.81E+00	mg/kg	3.1E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.0E-05	---	---	---	---	---
				Benzo(b)fluoranthene	7.12E+00	mg/kg	4.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-05	---	---	---	---	---
				Benzo(k)fluoranthene	2.79E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.2E-07	---	---	---	---	---
				Carbazole	5.47E-01	mg/kg	3.5E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	1.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.0E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	6.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	6.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.3E-07	---	---	---	---	---
				Aroclor-1260	1.34E-01	mg/kg	9.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.9E-07	---	---	---	---	---
				Vinyl chloride	1.10E-02	mg/kg	NA	mg/kg-day	7.2E-01	(mg/kg-day)-1	NA	---	---	---	---	---
				Metals												
				Aluminum	8.40E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.34E+00	mg/kg	4.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.4E-07	---	---	---	---	---
				Chromium Total	1.80E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	5.54E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.35E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.61E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.53E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.28E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								1.2E-04					---
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	3.4E-06	mg/m3	3.3E-04	(µg/m3)-1	1.1E-06	---	---	---	---	---
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	3.75E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	3.4E-15	mg/m3	3.8E+01	(µg/m3)-1	1.3E-10	---	---	---	---	---
				Hexachlorobenzene	3.75E-01	mg/kg	1.1E-10	mg/m3	4.6E-04	(µg/m3)-1	5.1E-11	---	---	---	---	---
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	1.1E-10	mg/m3	2.0E-03	(µg/m3)-1	2.2E-10	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	1.6E-09	mg/m3	1.1E-04	(µg/m3)-1	4.5E-10	---	---	---	---	---
				Benzo(a)pyrene	4.81E+00	mg/kg	1.4E-09	mg/m3	1.1E-03	(µg/m3)-1	3.9E-09	---	---	---	---	---
				Benzo(b)fluoranthene	7.12E+00	mg/kg	2.1E-09	mg/m3	1.1E-04	(µg/m3)-1	5.8E-10	---	---	---	---	---
				Benzo(k)fluoranthene	2.79E+00	mg/kg	8.3E-10	mg/m3	1.1E-04	(µg/m3)-1	2.3E-10	---	---	---	---	---
				Carbazole	5.47E-01	mg/kg	1.6E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	6.2E-11	mg/m3	1.2E-03	(µg/m3)-1	1.9E-10	---	---	---	---	---

TABLE A-7.2e1-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	3.2E-10	mg/m3	1.1E-04	(µg/m3)-1	8.7E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	2.7E-11	mg/m3	5.7E-04	(µg/m3)-1	1.5E-11	---	---	---	---	---
				Aroclor-1260	1.34E-01	mg/kg	4.0E-11	mg/m3	5.7E-04	(µg/m3)-1	2.3E-11	---	---	---	---	---
				Vinyl chloride	1.10E-02	mg/kg	1.3E-07	mg/m3	4.4E-06	(µg/m3)-1	1.9E-09	---	---	---	---	---
				Metals												
				Aluminum	8.40E+03	mg/kg	2.5E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	3.34E+00	mg/kg	9.9E-10	mg/m3	4.3E-03	(µg/m3)-1	4.2E-09	---	---	---	---	---
				Chromium Total	1.80E+01	mg/kg	5.3E-09	mg/m3	8.4E-02	(µg/m3)-1	1.1E-06	---	---	---	---	---
				Cobalt	5.54E+00	mg/kg	1.6E-09	mg/m3	9.0E-03	(µg/m3)-1	1.5E-08	---	---	---	---	---
				Iron	1.35E+04	mg/kg	4.0E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.61E+02	mg/kg	7.7E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	5.53E-01	mg/kg	1.6E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.28E+02	mg/kg	6.7E-08	mg/m3	1.5E-02	(µg/m3)-1	1.0E-06	---	---	---	---	---
			Inhalation Total								3.3E-06					---
	Aggregate Soil Total										5.2E-04					---
Soil Total											5.2E-04					---
										Total of Receptor Risks Across All Media	5.2E-04			Total of Receptor Hazards Across All Media		---

Note: In order to account for early life exposures to vinyl chloride, the equation used to calculate cancer risks for vinyl chloride in this lifetime resident exposure scenario differs from the equations used for other contaminants and other scenarios without early life exposures. See Section 6.1.2.

TABLE A-7.2e1-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	9.0E-09	mg/kg-day	1.1E+00	(mg/kg-day)-1	9.9E-09	6.3E-07	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	9.0E-09	mg/kg-day	NA	---	NA	6.3E-07	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	9.0E-09	mg/kg-day	NA	---	NA	6.3E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	9.0E-09	mg/kg-day	NA	---	NA	6.3E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	2.7E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.6E-08	1.9E-11	mg/kg-day	1.0E-09	mg/kg-day	0.019
				Hexachlorobenzene	3.75E-01	mg/kg	9.0E-09	mg/kg-day	1.6E+00	(mg/kg-day)-1	1.4E-08	6.3E-07	mg/kg-day	8.0E-04	mg/kg-day	0.00079
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	9.0E-09	mg/kg-day	7.0E+00	(mg/kg-day)-1	6.3E-08	6.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.6E-08	9.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.4E-07	8.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-07	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	6.7E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.9E-09	4.7E-06	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	1.3E-08	mg/kg-day	NA	---	NA	9.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	5.1E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-08	3.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-08	1.8E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	2.2E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.4E-09	1.5E-07	mg/kg-day	2.0E-05	mg/kg-day	0.0077
				Aroclor-1260	1.34E-01	mg/kg	3.2E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.4E-09	2.2E-07	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	2.6E-10	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.9E-10	1.8E-08	mg/kg-day	3.0E-03	mg/kg-day	0.0000062
				Metals												
				Aluminum	8.40E+03	mg/kg	2.0E-04	mg/kg-day	NA	---	NA	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.014
				Arsenic	3.34E+00	mg/kg	8.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-07	5.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.019
				Chromium Total	1.80E+01	mg/kg	4.3E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.2E-07	3.0E-05	mg/kg-day	3.0E-03	mg/kg-day	0.010
				Cobalt	5.54E+00	mg/kg	1.3E-07	mg/kg-day	NA	---	NA	9.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.031
				Iron	1.35E+04	mg/kg	3.2E-04	mg/kg-day	NA	---	NA	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.032
				Manganese	2.61E+02	mg/kg	6.3E-06	mg/kg-day	NA	---	NA	4.4E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0063
				Mercury	5.53E-01	mg/kg	1.3E-08	mg/kg-day	NA	---	NA	9.3E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0058
				Vanadium	2.28E+02	mg/kg	5.5E-06	mg/kg-day	NA	---	NA	3.8E-04	mg/kg-day	5.0E-03	mg/kg-day	0.076
			Ingestion Total								1.6E-06					0.22
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	NA	mg/kg-day	1.1E+00	(mg/kg-day)-1	NA	NA	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	2.7E-09	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	2.7E-09	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	2.7E-09	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	2.5E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.2E-09	1.7E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0017

TABLE A-7.2e1-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	2.7E-09	mg/kg-day	1.6E+00	(mg/kg-day)-1	4.3E-09	1.9E-07	mg/kg-day	8.0E-04	mg/kg-day	0.00024
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	2.7E-09	mg/kg-day	7.0E+00	(mg/kg-day)-1	1.9E-08	1.9E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-08	3.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	4.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.3E-07	3.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	6.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.9E-08	4.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.9E-09	1.8E-06	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	5.1E-09	mg/kg-day	NA	---	NA	3.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	2.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-08	1.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.3E-09	7.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	9.2E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-09	6.4E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0032
				Aroclor-1260	1.34E-01	mg/kg	1.3E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.7E-09	9.4E-08	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	NA	mg/kg-day	7.2E-01	(mg/kg-day)-1	NA	NA	mg/kg-day	3.0E-03	mg/kg-day	NA
				Metals												
				Aluminum	8.40E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.34E+00	mg/kg	7.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-08	5.0E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0017
				Chromium Total	1.80E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.54E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.35E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.61E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.53E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	2.28E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.8E-07					0.0069
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	7.8E-08	mg/m3	3.3E-04	(µg/m3)-1	2.6E-08	5.4E-06	mg/m3	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	4.6E-10	mg/m3	NA	---	NA	3.2E-08	mg/m3	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	4.6E-10	mg/m3	NA	---	NA	3.2E-08	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	4.6E-10	mg/m3	NA	---	NA	3.2E-08	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	1.4E-14	mg/m3	3.8E+01	(µg/m3)-1	5.3E-10	9.7E-13	mg/m3	4.0E-08	mg/m3	0.000024
				Hexachlorobenzene	3.75E-01	mg/kg	4.6E-10	mg/m3	4.6E-04	(µg/m3)-1	2.1E-10	3.2E-08	mg/m3	NA	---	NA
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	4.6E-10	mg/m3	2.0E-03	(µg/m3)-1	9.2E-10	3.2E-08	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	6.7E-09	mg/m3	1.1E-04	(µg/m3)-1	7.4E-10	4.7E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	5.9E-09	mg/m3	1.1E-03	(µg/m3)-1	6.5E-09	4.1E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	8.7E-09	mg/m3	1.1E-04	(µg/m3)-1	9.6E-10	6.1E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	3.4E-09	mg/m3	1.1E-04	(µg/m3)-1	3.8E-10	2.4E-07	mg/m3	NA	---	NA
				Carbazole	5.47E-01	mg/kg	6.7E-10	mg/m3	NA	---	NA	4.7E-08	mg/m3	NA	---	NA

TABLE A-7.2e1-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Dibenz(a,h)anthracene	2.11E-01	mg/kg	2.6E-10	mg/m3	1.2E-03	(µg/m3)-1	3.1E-10	1.8E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	1.3E-09	mg/m3	1.1E-04	(µg/m3)-1	1.4E-10	9.1E-08	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	1.1E-10	mg/m3	5.7E-04	(µg/m3)-1	6.4E-11	7.8E-09	mg/m3	NA	---	NA
				Aroclor-1260	1.34E-01	mg/kg	1.6E-10	mg/m3	5.7E-04	(µg/m3)-1	9.3E-11	1.1E-08	mg/m3	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	2.9E-09	mg/m3	4.4E-06	(µg/m3)-1	1.3E-11	2.0E-07	mg/m3	1.0E-01	mg/m3	0.0000020
				Metals												
				Aluminum	8.40E+03	mg/kg	1.0E-05	mg/m3	NA	---	NA	7.2E-04	mg/m3	5.0E-03	mg/m3	0.14
				Arsenic	3.34E+00	mg/kg	4.1E-09	mg/m3	4.3E-03	(µg/m3)-1	1.8E-08	2.9E-07	mg/m3	1.5E-05	mg/m3	0.019
				Chromium Total	1.80E+01	mg/kg	2.2E-08	mg/m3	8.4E-02	(µg/m3)-1	1.9E-06	1.5E-06	mg/m3	1.0E-04	mg/m3	0.015
				Cobalt	5.54E+00	mg/kg	6.8E-09	mg/m3	9.0E-03	(µg/m3)-1	6.1E-08	4.7E-07	mg/m3	6.0E-06	mg/m3	0.079
				Iron	1.35E+04	mg/kg	1.7E-05	mg/m3	NA	---	NA	1.2E-03	mg/m3	NA	---	NA
				Manganese	2.61E+02	mg/kg	3.2E-07	mg/m3	NA	---	NA	2.2E-05	mg/m3	5.0E-05	mg/m3	0.45
				Mercury	5.53E-01	mg/kg	6.8E-10	mg/m3	NA	---	NA	4.7E-08	mg/m3	3.0E-04	mg/m3	0.00016
				Vanadium	2.28E+02	mg/kg	2.8E-07	mg/m3	1.5E-02	(µg/m3)-1	4.2E-06	1.9E-05	mg/m3	5.6E-05	mg/m3	0.35
			Inhalation Total								6.1E-06					1.1
	Aggregate Soil Total										8.2E-06					1.3
Soil Total											8.2E-06					1.3
										Total of Receptor Risks Across All Media	8.2E-06				Total of Receptor Hazards Across All Media	1.3

TABLE A-7.1e1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	8.2E-09	mg/kg-day	NA	---	NA	8.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.1E-08	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.5E-07	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	7.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.2E-08	7.1E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	2.5E-08	mg/kg-day	NA	---	NA	2.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.8E-08	1.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	5.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.3E-08	5.8E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	4.5E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	9.1E-09	4.5E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0023
				Metals												
				Aluminum	7.99E+03	mg/kg	5.5E-04	mg/kg-day	NA	---	NA	5.5E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0055
				Arsenic	3.50E+00	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.6E-07	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0080
				Chromium Total	1.69E+01	mg/kg	1.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	5.8E-07	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0039
				Cobalt	4.74E+00	mg/kg	3.2E-07	mg/kg-day	NA	---	NA	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.011
				Iron	1.18E+04	mg/kg	8.1E-04	mg/kg-day	NA	---	NA	8.1E-03	mg/kg-day	7.0E-01	mg/kg-day	0.012
				Manganese	2.66E+02	mg/kg	1.8E-05	mg/kg-day	NA	---	NA	1.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0026
				Vanadium	3.64E+01	mg/kg	2.5E-06	mg/kg-day	NA	---	NA	2.5E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0049
			Ingestion Total								2.0E-06					0.049
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	9.4E-10	mg/kg-day	NA	---	NA	9.4E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-08	1.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.1E-07	1.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.7E-09	1.1E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	3.8E-09	mg/kg-day	NA	---	NA	3.8E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-08	1.8E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	8.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.3E-09	8.6E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	7.2E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.4E-09	7.2E-09	mg/kg-day	2.0E-05	mg/kg-day	0.00036
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	8.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-08	8.2E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00027
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA

TABLE A-7.1e1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Dermal	Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.7E-07					0.00064
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	8.3E-12	mg/m3	NA	---	NA	8.3E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.3E-10	mg/m3	1.1E-04	(µg/m3)-1	1.4E-11	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	1.0E-10	mg/m3	1.1E-03	(µg/m3)-1	1.1E-10	1.0E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	7.2E-11	mg/m3	1.1E-04	(µg/m3)-1	7.9E-12	7.2E-10	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	2.6E-11	mg/m3	NA	---	NA	2.6E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.2E-11	mg/m3	1.2E-03	(µg/m3)-1	1.4E-11	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	5.9E-11	mg/m3	1.1E-04	(µg/m3)-1	6.5E-12	5.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	4.6E-12	mg/m3	5.7E-04	(µg/m3)-1	2.6E-12	4.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	5.5E-07	mg/m3	NA	---	NA	5.5E-06	mg/m3	5.0E-03	mg/m3	0.0011
				Arsenic	3.50E+00	mg/kg	2.4E-10	mg/m3	4.3E-03	(µg/m3)-1	1.0E-09	2.4E-09	mg/m3	1.5E-05	mg/m3	0.00016
				Chromium Total	1.69E+01	mg/kg	1.2E-09	mg/m3	8.4E-02	(µg/m3)-1	9.8E-08	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	4.74E+00	mg/kg	3.3E-10	mg/m3	9.0E-03	(µg/m3)-1	2.9E-09	3.3E-09	mg/m3	6.0E-06	mg/m3	0.00054
				Iron	1.18E+04	mg/kg	8.1E-07	mg/m3	NA	---	NA	8.1E-06	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	1.8E-08	mg/m3	NA	---	NA	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Vanadium	3.64E+01	mg/kg	2.5E-09	mg/m3	1.5E-02	(µg/m3)-1	3.8E-08	2.5E-08	mg/m3	3.9E-06	mg/m3	0.0064
			Inhalation Total								1.4E-07					0.012
	Surface Soil Total										2.3E-06					0.062
Soil Total											2.3E-06					0.062
										Total of Receptor Risks Across All Media	2.3E-06				Total of Receptor Hazards Across All Media	0.062

TABLE A-7.1e1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	---	---	---	---	---	7.7E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	---	---	---	---	---	9.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	---	---	---	---	---	6.6E-06	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	---	---	---	---	---	5.4E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	---	---	---	---	---	4.2E-07	mg/kg-day	2.0E-05	mg/kg-day	0.021
				Metals												
				Aluminum	7.99E+03	mg/kg	---	---	---	---	---	5.1E-02	mg/kg-day	1.0E+00	mg/kg-day	0.051
				Arsenic	3.50E+00	mg/kg	---	---	---	---	---	2.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.075
				Chromium Total	1.69E+01	mg/kg	---	---	---	---	---	1.1E-04	mg/kg-day	3.0E-03	mg/kg-day	0.036
				Cobalt	4.74E+00	mg/kg	---	---	---	---	---	3.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.10
				Iron	1.18E+04	mg/kg	---	---	---	---	---	7.5E-02	mg/kg-day	7.0E-01	mg/kg-day	0.11
				Manganese	2.66E+02	mg/kg	---	---	---	---	---	1.7E-03	mg/kg-day	7.0E-02	mg/kg-day	0.024
				Vanadium	3.64E+01	mg/kg	---	---	---	---	---	2.3E-04	mg/kg-day	5.0E-03	mg/kg-day	0.046
			Ingestion Total								---					0.46
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	---	---	---	---	---	8.6E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	---	---	---	---	---	9.7E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	---	---	---	---	---	3.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	---	---	---	---	---	7.9E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	---	---	---	---	---	6.6E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0033
				Metals												
				Aluminum	7.99E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	---	---	---	---	---	7.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0025
				Chromium Total	1.69E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.66E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0058
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	---	---	---	---	---	8.3E-11	mg/m3	NA	---	NA

TABLE A-7.1e1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Inhalation	PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	---	---	---	---	---	1.0E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	---	---	---	---	---	7.2E-10	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	---	---	---	---	---	5.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	---	---	---	---	---	4.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	---	---	---	---	---	5.5E-06	mg/m3	5.0E-03	mg/m3	0.0011
				Arsenic	3.50E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.5E-05	mg/m3	0.00016
				Chromium Total	1.69E+01	mg/kg	---	---	---	---	---	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	4.74E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	6.0E-06	mg/m3	0.00054
				Iron	1.18E+04	mg/kg	---	---	---	---	---	8.1E-06	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	---	---	---	---	---	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Vanadium	3.64E+01	mg/kg	---	---	---	---	---	2.5E-08	mg/m3	3.9E-06	mg/m3	0.0064
			Inhalation Total								---					0.012
	Surface Soil Total										---					0.48
Soil Total											---					0.48
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.48

TABLE A-7.1e1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	3.0E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(a)pyrene	1.50E+00	mg/kg	3.8E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.2E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.04E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-06	---	---	---	---	---
				Carbazole	3.70E-01	mg/kg	9.3E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	4.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.6E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	2.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.7E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.3E-08	---	---	---	---	---
				Metals												
				Aluminum	7.99E+03	mg/kg	2.0E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.50E+00	mg/kg	8.8E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				Chromium Total	1.69E+01	mg/kg	4.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.7E-05	---	---	---	---	---
				Cobalt	4.74E+00	mg/kg	1.2E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.18E+04	mg/kg	3.0E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.66E+02	mg/kg	6.7E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.64E+01	mg/kg	9.1E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								4.9E-05					---
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	3.4E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	6.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-07	---	---	---	---	---
				Benzo(a)pyrene	1.50E+00	mg/kg	5.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.2E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.04E+00	mg/kg	3.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-07	---	---	---	---	---
				Carbazole	3.70E-01	mg/kg	1.4E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	6.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.8E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-07	---	---	---	---	---
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.2E-09	---	---	---	---	---
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.50E+00	mg/kg	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.5E-08	---	---	---	---	---
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.5E-06					---
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	1.1E-11	mg/m3	NA	---	NA	---	---	---	---	---

TABLE A-7.1e1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Inhalation	PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	8.0E-11	---	---	---	---	---
				Benzo(a)pyrene	1.50E+00	mg/kg	1.3E-10	mg/m3	1.1E-03	(µg/m3)-1	6.6E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.04E+00	mg/kg	9.2E-11	mg/m3	1.1E-04	(µg/m3)-1	4.6E-11	---	---	---	---	---
				Carbazole	3.70E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.6E-11	mg/m3	1.2E-03	(µg/m3)-1	8.4E-11	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	7.6E-11	mg/m3	1.1E-04	(µg/m3)-1	3.8E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	5.9E-12	mg/m3	5.7E-04	(µg/m3)-1	3.4E-12	---	---	---	---	---
				Metals												
				Aluminum	7.99E+03	mg/kg	7.1E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	3.50E+00	mg/kg	3.1E-10	mg/m3	4.3E-03	(µg/m3)-1	1.3E-09	---	---	---	---	---
				Chromium Total	1.69E+01	mg/kg	1.5E-09	mg/m3	8.4E-02	(µg/m3)-1	5.7E-07	---	---	---	---	---
				Cobalt	4.74E+00	mg/kg	4.2E-10	mg/m3	9.0E-03	(µg/m3)-1	3.8E-09	---	---	---	---	---
				Iron	1.18E+04	mg/kg	1.0E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.66E+02	mg/kg	2.4E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	3.64E+01	mg/kg	3.2E-09	mg/m3	1.5E-02	(µg/m3)-1	4.8E-08	---	---	---	---	---
			Inhalation Total								6.2E-07					---
	Surface Soil Total										5.4E-05					---
Soil Total											5.4E-05					---
										Total of Receptor Risks Across All Media	5.4E-05				Total of Receptor Hazards Across All Media	---

TABLE A-7.1e1-4 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	4.9E-09	mg/kg-day	NA	---	NA	1.7E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	7.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.4E-07	2.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	6.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.5E-06	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-07	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	1.5E-08	mg/kg-day	NA	---	NA	5.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	7.1E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.2E-07	2.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-07	1.2E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.4E-09	9.4E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0047
				Metals												
				Aluminum	7.99E+03	mg/kg	3.3E-04	mg/kg-day	NA	---	NA	1.1E-02	mg/kg-day	1.0E+00	mg/kg-day	0.011
				Arsenic	3.50E+00	mg/kg	1.4E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.1E-07	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Chromium Total	1.69E+01	mg/kg	6.9E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.4E-06	2.4E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0080
				Cobalt	4.74E+00	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	6.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.022
				Iron	1.18E+04	mg/kg	4.8E-04	mg/kg-day	NA	---	NA	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	0.024
				Manganese	2.66E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	3.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0054
				Vanadium	3.64E+01	mg/kg	1.5E-06	mg/kg-day	NA	---	NA	5.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.010
			Ingestion Total								9.7E-06					0.10
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	5.5E-10	mg/kg-day	NA	---	NA	1.9E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.9E-08	3.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	8.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.5E-07	3.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	6.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.5E-08	2.2E-07	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	2.2E-09	mg/kg-day	NA	---	NA	7.7E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.6E-08	3.6E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	5.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.7E-08	1.8E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	4.2E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	8.5E-10	1.5E-08	mg/kg-day	2.0E-05	mg/kg-day	0.00074
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	4.8E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.2E-09	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00056
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA

TABLE A-7.1e1-4 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Dermal	Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								8.9E-07					0.0013
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	8.8E-14	mg/m3	NA	---	NA	3.1E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	1.3E-12	mg/m3	1.1E-04	(µg/m3)-1	1.5E-12	4.7E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	1.1E-12	mg/m3	1.1E-03	(µg/m3)-1	1.2E-11	3.8E-11	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	7.6E-13	mg/m3	1.1E-04	(µg/m3)-1	8.3E-13	2.7E-11	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	2.7E-13	mg/m3	NA	---	NA	9.5E-12	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	1.3E-13	mg/m3	1.2E-03	(µg/m3)-1	1.5E-12	4.5E-12	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	6.2E-13	mg/m3	1.1E-04	(µg/m3)-1	6.8E-13	2.2E-11	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	4.9E-14	mg/m3	5.7E-04	(µg/m3)-1	2.8E-14	1.7E-12	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	5.9E-09	mg/m3	NA	---	NA	2.0E-07	mg/m3	5.0E-03	mg/m3	0.000041
				Arsenic	3.50E+00	mg/kg	2.6E-12	mg/m3	4.3E-03	(µg/m3)-1	1.1E-11	9.0E-11	mg/m3	1.5E-05	mg/m3	0.0000060
				Chromium Total	1.69E+01	mg/kg	1.2E-11	mg/m3	8.4E-02	(µg/m3)-1	1.0E-08	4.3E-10	mg/m3	1.0E-04	mg/m3	0.0000043
				Cobalt	4.74E+00	mg/kg	3.5E-12	mg/m3	9.0E-03	(µg/m3)-1	3.1E-11	1.2E-10	mg/m3	6.0E-06	mg/m3	0.000020
				Iron	1.18E+04	mg/kg	8.6E-09	mg/m3	NA	---	NA	3.0E-07	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	1.9E-10	mg/m3	NA	---	NA	6.8E-09	mg/m3	5.0E-05	mg/m3	0.00014
				Vanadium	3.64E+01	mg/kg	2.7E-11	mg/m3	1.5E-02	(µg/m3)-1	4.0E-10	9.3E-10	mg/m3	3.9E-06	mg/m3	0.00024
			Inhalation Total								1.1E-08					0.00045
	Surface Soil Total										1.1E-05					0.10
Soil Total											1.1E-05					0.10
										Total of Receptor Risks Across All Media	1.1E-05				Total of Receptor Hazards Across All Media	0.10

TABLE A-7.1e1-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	1.4E-09	mg/kg-day	NA	---	NA	1.1E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-08	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-07	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.6E-09	9.1E-08	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	4.2E-09	mg/kg-day	NA	---	NA	3.3E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	2.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-08	1.5E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	9.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.0E-09	7.5E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	7.5E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.5E-09	5.8E-09	mg/kg-day	2.0E-05	mg/kg-day	0.00029
				Metals												
				Aluminum	7.99E+03	mg/kg	9.0E-05	mg/kg-day	NA	---	NA	7.0E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00070
				Arsenic	3.50E+00	mg/kg	4.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.9E-08	3.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0010
				Chromium Total	1.69E+01	mg/kg	1.9E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	9.6E-08	1.5E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00050
				Cobalt	4.74E+00	mg/kg	5.4E-08	mg/kg-day	NA	---	NA	4.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0014
				Iron	1.18E+04	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	1.0E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0015
				Manganese	2.66E+02	mg/kg	3.0E-06	mg/kg-day	NA	---	NA	2.3E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00033
				Vanadium	3.64E+01	mg/kg	4.1E-07	mg/kg-day	NA	---	NA	3.2E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00064
			Ingestion Total								3.3E-07					0.0064
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.4E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	3.5E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-09	2.8E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-08	2.3E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	2.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-09	1.6E-08	mg/kg-day	NA	---	NA
				Carbazole	3.70E-01	mg/kg	7.2E-10	mg/kg-day	NA	---	NA	5.6E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	3.4E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.5E-09	2.6E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	1.7E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-09	1.3E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	1.4E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.8E-10	1.1E-09	mg/kg-day	2.0E-05	mg/kg-day	0.000054
				Metals												
				Aluminum	7.99E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.50E+00	mg/kg	1.6E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.4E-09	1.2E-08	mg/kg-day	3.0E-04	mg/kg-day	0.000041
				Chromium Total	1.69E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	4.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.18E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA

TABLE A-7.1e1-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E1	Dermal	Manganese	2.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	3.64E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								3.2E-08					0.000095
			Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	4.6E-13	mg/m3	NA	---	NA	3.6E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.82E+00	mg/kg	6.9E-12	mg/m3	1.1E-04	(µg/m3)-1	7.6E-13	5.4E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.50E+00	mg/kg	5.7E-12	mg/m3	1.1E-03	(µg/m3)-1	6.3E-12	4.4E-11	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.04E+00	mg/kg	4.0E-12	mg/m3	1.1E-04	(µg/m3)-1	4.3E-13	3.1E-11	mg/m3	NA	---	NA
				Carbazole	3.70E-01	mg/kg	1.4E-12	mg/m3	NA	---	NA	1.1E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.75E-01	mg/kg	6.7E-13	mg/m3	1.2E-03	(µg/m3)-1	8.0E-13	5.2E-12	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	8.52E-01	mg/kg	3.2E-12	mg/m3	1.1E-04	(µg/m3)-1	3.6E-13	2.5E-11	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	6.63E-02	mg/kg	2.5E-13	mg/m3	5.7E-04	(µg/m3)-1	1.4E-13	2.0E-12	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.99E+03	mg/kg	3.0E-08	mg/m3	NA	---	NA	2.4E-07	mg/m3	5.0E-03	mg/m3	0.000047
				Arsenic	3.50E+00	mg/kg	1.3E-11	mg/m3	4.3E-03	(µg/m3)-1	5.7E-11	1.0E-10	mg/m3	1.5E-05	mg/m3	0.0000069
				Chromium Total	1.69E+01	mg/kg	6.4E-11	mg/m3	8.4E-02	(µg/m3)-1	5.4E-09	5.0E-10	mg/m3	1.0E-04	mg/m3	0.0000050
				Cobalt	4.74E+00	mg/kg	1.8E-11	mg/m3	9.0E-03	(µg/m3)-1	1.6E-10	1.4E-10	mg/m3	6.0E-06	mg/m3	0.000023
				Iron	1.18E+04	mg/kg	4.5E-08	mg/m3	NA	---	NA	3.5E-07	mg/m3	NA	---	NA
				Manganese	2.66E+02	mg/kg	1.0E-09	mg/m3	NA	---	NA	7.9E-09	mg/m3	5.0E-05	mg/m3	0.00016
				Vanadium	3.64E+01	mg/kg	1.4E-10	mg/m3	1.5E-02	(µg/m3)-1	2.1E-09	1.1E-09	mg/m3	3.9E-06	mg/m3	0.00027
			Inhalation Total								7.7E-09					0.00051
	Surface Soil Total										3.7E-07					0.0070
Soil Total											3.7E-07					0.0070
										Total of Receptor Risks Across All Media	3.7E-07				Total of Receptor Hazards Across All Media	0.0070

TABLE A-7.2e1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	7.8E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0078
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	8.0E-04	mg/kg-day	0.00032
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.8E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	4.9E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	7.3E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	6.3E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0031
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	9.2E-08	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	7.5E-09	mg/kg-day	3.0E-03	mg/kg-day	0.0000025
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	5.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0058
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0076
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0041
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	3.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.013
				Iron	1.35E+04	mg/kg	---	---	---	---	---	9.3E-03	mg/kg-day	7.0E-01	mg/kg-day	0.013
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	1.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0026
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	3.8E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0024
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	1.6E-04	mg/kg-day	5.0E-03	mg/kg-day	0.031
			Ingestion Total								---					0.090
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	2.7E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00027

TABLE A-7.2e1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	8.0E-04	mg/kg-day	0.000037
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	5.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	4.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	7.2E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	2.8E-07	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	5.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	2.1E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	1.0E-08	mg/kg-day	2.0E-05	mg/kg-day	0.00050
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	1.5E-08	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-03	mg/kg-day	NA
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	7.8E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00026
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.35E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0011
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	8.0E-06	mg/m3	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	7.9E-15	mg/m3	4.0E-08	mg/m3	0.00000020
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	4.9E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.9E-09	mg/m3	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA

TABLE A-7.2e1-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	6.3E-11	mg/m3	NA	---	NA
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	9.3E-11	mg/m3	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	3.0E-07	mg/m3	1.0E-01	mg/m3	0.0000030
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	5.8E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	2.3E-09	mg/m3	1.5E-05	mg/m3	0.00015
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	6.0E-06	mg/m3	0.00064
				Iron	1.35E+04	mg/kg	---	---	---	---	---	9.3E-06	mg/m3	NA	---	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0036
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	1.6E-07	mg/m3	3.9E-06	mg/m3	0.040
			Inhalation Total								---					0.046
	Aggregate Soil Total										---					0.14
Soil Total											---					0.14
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.14

TABLE A-7.2e1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	7.3E-11	mg/kg-day	1.0E-09	mg/kg-day	0.073
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	8.0E-04	mg/kg-day	0.0030
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.5E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.1E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	4.6E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.8E-05	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.5E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	6.8E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	5.8E-07	mg/kg-day	2.0E-05	mg/kg-day	0.029
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	8.6E-07	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	7.0E-08	mg/kg-day	3.0E-03	mg/kg-day	0.000023
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	5.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.054
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	2.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.071
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	0.038
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	3.5E-05	mg/kg-day	3.0E-04	mg/kg-day	0.12
				Iron	1.35E+04	mg/kg	---	---	---	---	---	8.6E-02	mg/kg-day	7.0E-01	mg/kg-day	0.12
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	1.7E-03	mg/kg-day	7.0E-02	mg/kg-day	0.024
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	3.5E-06	mg/kg-day	1.6E-04	mg/kg-day	0.022
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	1.5E-03	mg/kg-day	5.0E-03	mg/kg-day	0.29
			Ingestion Total								---					0.84
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	2.4E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0024

TABLE A-7.2e1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	8.0E-04	mg/kg-day	0.00034
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	5.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	4.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	6.6E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	2.6E-06	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	9.9E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	9.2E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0046
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-03	mg/kg-day	NA
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	7.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0024
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.35E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0098
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	---	---	---	---	---	8.0E-06	mg/m3	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	---	---	---	---	---	7.9E-15	mg/m3	4.0E-08	mg/m3	0.00000020
				Hexachlorobenzene	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	---	---	---	---	---	4.9E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	---	---	---	---	---	1.9E-09	mg/m3	NA	---	NA
				Carbazole	5.47E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	---	---	---	---	---	1.5E-10	mg/m3	NA	---	NA

TABLE A-7.2e1-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	---	---	---	---	---	6.3E-11	mg/m3	NA	---	NA
				Aroclor-1260	1.34E-01	mg/kg	---	---	---	---	---	9.3E-11	mg/m3	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	---	---	---	---	---	3.0E-07	mg/m3	1.0E-01	mg/m3	0.0000030
				Metals												
				Aluminum	8.40E+03	mg/kg	---	---	---	---	---	5.8E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Arsenic	3.34E+00	mg/kg	---	---	---	---	---	2.3E-09	mg/m3	1.5E-05	mg/m3	0.00015
				Chromium Total	1.80E+01	mg/kg	---	---	---	---	---	1.2E-08	mg/m3	1.0E-04	mg/m3	0.00012
				Cobalt	5.54E+00	mg/kg	---	---	---	---	---	3.8E-09	mg/m3	6.0E-06	mg/m3	0.00064
				Iron	1.35E+04	mg/kg	---	---	---	---	---	9.3E-06	mg/m3	NA	---	NA
				Manganese	2.61E+02	mg/kg	---	---	---	---	---	1.8E-07	mg/m3	5.0E-05	mg/m3	0.0036
				Mercury	5.53E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Vanadium	2.28E+02	mg/kg	---	---	---	---	---	1.6E-07	mg/m3	3.9E-06	mg/m3	0.040
			Inhalation Total								---					0.046
	Aggregate Soil Total										---					0.90
Soil Total											---					0.90
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.90

TABLE A-7.2e1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	9.4E-08	mg/kg-day	1.1E+00	(mg/kg-day)-1	1.0E-07	---	---	---	---	---
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	9.4E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	9.4E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	3.75E-01	mg/kg	9.4E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	2.9E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.7E-07	---	---	---	---	---
				Hexachlorobenzene	3.75E-01	mg/kg	9.4E-08	mg/kg-day	1.6E+00	(mg/kg-day)-1	1.5E-07	---	---	---	---	---
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	9.4E-08	mg/kg-day	7.0E+00	(mg/kg-day)-1	6.6E-07	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	1.4E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.1E-06	---	---	---	---	---
				Benzo(a)pyrene	4.81E+00	mg/kg	1.2E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.1E-05	---	---	---	---	---
				Benzo(b)fluoranthene	7.12E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-05	---	---	---	---	---
				Benzo(k)fluoranthene	2.79E+00	mg/kg	7.0E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.1E-07	---	---	---	---	---
				Carbazole	5.47E-01	mg/kg	1.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.6E-08	---	---	---	---	---
				Aroclor-1260	1.34E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.7E-08	---	---	---	---	---
				Vinyl chloride	1.10E-02	mg/kg	2.8E-09	mg/kg-day	7.2E-01	(mg/kg-day)-1	5.5E-08	---	---	---	---	---
				Metals												
				Aluminum	8.40E+03	mg/kg	2.1E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.34E+00	mg/kg	8.4E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				Chromium Total	1.80E+01	mg/kg	4.5E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.8E-05	---	---	---	---	---
				Cobalt	5.54E+00	mg/kg	1.4E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.35E+04	mg/kg	3.4E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.61E+02	mg/kg	6.6E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.53E-01	mg/kg	1.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.28E+02	mg/kg	5.7E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.2E-04					---
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	NA	mg/kg-day	1.1E+00	(mg/kg-day)-1	NA	---	---	---	---	---
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	3.75E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	9.7E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.3E-08	---	---	---	---	---

TABLE A-7.2e1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	1.1E-08	mg/kg-day	1.6E+00	(mg/kg-day)-1	1.7E-08	---	---	---	---	---
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	1.1E-08	mg/kg-day	7.0E+00	(mg/kg-day)-1	7.4E-08	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-06	---	---	---	---	---
				Benzo(a)pyrene	4.81E+00	mg/kg	1.8E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-05	---	---	---	---	---
				Benzo(b)fluoranthene	7.12E+00	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-06	---	---	---	---	---
				Benzo(k)fluoranthene	2.79E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.0E-08	---	---	---	---	---
				Carbazole	5.47E-01	mg/kg	2.0E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.6E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-07	---	---	---	---	---
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	3.6E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.2E-09	---	---	---	---	---
				Aroclor-1260	1.34E-01	mg/kg	5.3E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-08	---	---	---	---	---
				Vinyl chloride	1.10E-02	mg/kg	NA	mg/kg-day	7.2E-01	(mg/kg-day)-1	NA	---	---	---	---	---
				Metals												
				Aluminum	8.40E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	3.34E+00	mg/kg	2.8E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.2E-08	---	---	---	---	---
				Chromium Total	1.80E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	5.54E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.35E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.61E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.53E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.28E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								1.4E-05					---
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	1.0E-06	mg/m3	3.3E-04	(µg/m3)-1	3.4E-07	---	---	---	---	---
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	3.75E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	1.0E-15	mg/m3	3.8E+01	(µg/m3)-1	3.8E-11	---	---	---	---	---
				Hexachlorobenzene	3.75E-01	mg/kg	3.3E-11	mg/m3	4.6E-04	(µg/m3)-1	1.5E-11	---	---	---	---	---
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	3.3E-11	mg/m3	2.0E-03	(µg/m3)-1	6.7E-11	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	4.9E-10	mg/m3	1.1E-04	(µg/m3)-1	2.4E-10	---	---	---	---	---
				Benzo(a)pyrene	4.81E+00	mg/kg	4.3E-10	mg/m3	1.1E-03	(µg/m3)-1	2.1E-09	---	---	---	---	---
				Benzo(b)fluoranthene	7.12E+00	mg/kg	6.3E-10	mg/m3	1.1E-04	(µg/m3)-1	3.1E-10	---	---	---	---	---
				Benzo(k)fluoranthene	2.79E+00	mg/kg	2.5E-10	mg/m3	1.1E-04	(µg/m3)-1	1.2E-10	---	---	---	---	---
				Carbazole	5.47E-01	mg/kg	4.9E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	1.9E-11	mg/m3	1.2E-03	(µg/m3)-1	1.0E-10	---	---	---	---	---

TABLE A-7.2e1-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	9.5E-11	mg/m3	1.1E-04	(µg/m3)-1	4.7E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	8.1E-12	mg/m3	5.7E-04	(µg/m3)-1	4.6E-12	---	---	---	---	---
				Aroclor-1260	1.34E-01	mg/kg	1.2E-11	mg/m3	5.7E-04	(µg/m3)-1	6.8E-12	---	---	---	---	---
				Vinyl chloride	1.10E-02	mg/kg	3.9E-08	mg/m3	4.4E-06	(µg/m3)-1	1.5E-09	---	---	---	---	---
				Metals												
				Aluminum	8.40E+03	mg/kg	7.5E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	3.34E+00	mg/kg	3.0E-10	mg/m3	4.3E-03	(µg/m3)-1	1.3E-09	---	---	---	---	---
				Chromium Total	1.80E+01	mg/kg	1.6E-09	mg/m3	8.4E-02	(µg/m3)-1	6.1E-07	---	---	---	---	---
				Cobalt	5.54E+00	mg/kg	4.9E-10	mg/m3	9.0E-03	(µg/m3)-1	4.4E-09	---	---	---	---	---
				Iron	1.35E+04	mg/kg	1.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.61E+02	mg/kg	2.3E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	5.53E-01	mg/kg	4.9E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.28E+02	mg/kg	2.0E-08	mg/m3	1.5E-02	(µg/m3)-1	3.0E-07	---	---	---	---	---
			Inhalation Total								1.3E-06					---
	Aggregate Soil Total										1.3E-04					---
Soil Total											1.3E-04					---
										Total of Receptor Risks Across All Media	1.3E-04				Total of Receptor Hazards Across All Media	---

Note: In order to account for early life exposures to vinyl chloride, the equation used to calculate cancer risks for vinyl chloride in this lifetime resident exposure scenario differs from the equations used for other contaminants and other scenarios without early life exposures. See Section 6.1.2.

TABLE A-7.2e1-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Ingestion	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	5.5E-10	mg/kg-day	1.1E+00	(mg/kg-day)-1	6.0E-10	3.8E-08	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	5.5E-10	mg/kg-day	NA	---	NA	3.8E-08	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	5.5E-10	mg/kg-day	NA	---	NA	3.8E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	5.5E-10	mg/kg-day	NA	---	NA	3.8E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	1.7E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.2E-09	1.2E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0012
				Hexachlorobenzene	3.75E-01	mg/kg	5.5E-10	mg/kg-day	1.6E+00	(mg/kg-day)-1	8.7E-10	3.8E-08	mg/kg-day	8.0E-04	mg/kg-day	0.000048
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	5.5E-10	mg/kg-day	7.0E+00	(mg/kg-day)-1	3.8E-09	3.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	8.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.8E-09	5.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.1E-08	4.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.6E-09	7.2E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	4.1E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.0E-10	2.8E-07	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	8.0E-10	mg/kg-day	NA	---	NA	5.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	3.1E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.2E-09	2.1E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-09	1.1E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	1.3E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.7E-10	9.3E-09	mg/kg-day	2.0E-05	mg/kg-day	0.00047
				Aroclor-1260	1.34E-01	mg/kg	1.9E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.9E-10	1.4E-08	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	1.6E-11	mg/kg-day	7.2E-01	(mg/kg-day)-1	1.2E-11	1.1E-09	mg/kg-day	3.0E-03	mg/kg-day	0.00000037
				Metals												
				Aluminum	8.40E+03	mg/kg	1.2E-05	mg/kg-day	NA	---	NA	8.5E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00085
				Arsenic	3.34E+00	mg/kg	4.8E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.3E-09	3.4E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0011
				Chromium Total	1.80E+01	mg/kg	2.6E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.3E-08	1.8E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00061
				Cobalt	5.54E+00	mg/kg	8.1E-09	mg/kg-day	NA	---	NA	5.6E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0019
				Iron	1.35E+04	mg/kg	2.0E-05	mg/kg-day	NA	---	NA	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0020
				Manganese	2.61E+02	mg/kg	3.8E-07	mg/kg-day	NA	---	NA	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00038
				Mercury	5.53E-01	mg/kg	8.0E-10	mg/kg-day	NA	---	NA	5.6E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00035
				Vanadium	2.28E+02	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	2.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0046
			Ingestion Total								9.7E-08					0.013
			Dermal	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	NA	mg/kg-day	1.1E+00	(mg/kg-day)-1	NA	NA	mg/kg-day	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	1.6E-15	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.1E-10	1.1E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00011

TABLE A-7.2e1-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Dermal	Hexachlorobenzene	3.75E-01	mg/kg	1.8E-10	mg/kg-day	1.6E+00	(mg/kg-day)-1	2.9E-10	1.3E-08	mg/kg-day	8.0E-04	mg/kg-day	0.000016
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	1.8E-10	mg/kg-day	7.0E+00	(mg/kg-day)-1	1.3E-09	1.3E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	3.4E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-09	2.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.2E-08	2.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	4.4E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.2E-09	3.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	1.7E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.3E-10	1.2E-07	mg/kg-day	NA	---	NA
				Carbazole	5.47E-01	mg/kg	3.4E-10	mg/kg-day	NA	---	NA	2.4E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.11E-01	mg/kg	1.3E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.6E-10	9.2E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	6.7E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.9E-10	4.7E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	6.1E-11	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.2E-10	4.3E-09	mg/kg-day	2.0E-05	mg/kg-day	0.00021
				Aroclor-1260	1.34E-01	mg/kg	9.0E-11	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-10	6.3E-09	mg/kg-day	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	NA	mg/kg-day	7.2E-01	(mg/kg-day)-1	NA	NA	mg/kg-day	3.0E-03	mg/kg-day	NA
				Metals												
				Aluminum	8.40E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.34E+00	mg/kg	4.8E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.2E-10	3.4E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00011
				Chromium Total	1.80E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.54E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.35E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	2.61E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.53E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	2.28E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								3.2E-08					0.00046
			Inhalation	bis(2-Chloroethyl)ether	3.75E-01	mg/kg	1.6E-08	mg/m3	3.3E-04	(µg/m3)-1	5.1E-09	1.1E-06	mg/m3	NA	---	NA
				4-Bromophenyl phenyl ether	3.75E-01	mg/kg	9.2E-11	mg/m3	NA	---	NA	6.4E-09	mg/m3	NA	---	NA
				4-Chlorophenyl phenyl ether	3.75E-01	mg/kg	9.2E-11	mg/m3	NA	---	NA	6.4E-09	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.75E-01	mg/kg	9.2E-11	mg/m3	NA	---	NA	6.4E-09	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	1.14E-05	mg/kg	2.8E-15	mg/m3	3.8E+01	(µg/m3)-1	1.1E-10	1.9E-13	mg/m3	4.0E-08	mg/m3	0.0000049
				Hexachlorobenzene	3.75E-01	mg/kg	9.2E-11	mg/m3	4.6E-04	(µg/m3)-1	4.2E-11	6.4E-09	mg/m3	NA	---	NA
				N-Nitrosodi-n-propylamine	3.75E-01	mg/kg	9.2E-11	mg/m3	2.0E-03	(µg/m3)-1	1.8E-10	6.4E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.49E+00	mg/kg	1.3E-09	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	9.4E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.81E+00	mg/kg	1.2E-09	mg/m3	1.1E-03	(µg/m3)-1	1.3E-09	8.2E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.12E+00	mg/kg	1.7E-09	mg/m3	1.1E-04	(µg/m3)-1	1.9E-10	1.2E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.79E+00	mg/kg	6.8E-10	mg/m3	1.1E-04	(µg/m3)-1	7.5E-11	4.8E-08	mg/m3	NA	---	NA
				Carbazole	5.47E-01	mg/kg	1.3E-10	mg/m3	NA	---	NA	9.4E-09	mg/m3	NA	---	NA

TABLE A-7.2e1-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Inhalation	Dibenz(a,h)anthracene	2.11E-01	mg/kg	5.2E-11	mg/m3	1.2E-03	(µg/m3)-1	6.2E-11	3.6E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.07E+00	mg/kg	2.6E-10	mg/m3	1.1E-04	(µg/m3)-1	2.9E-11	1.8E-08	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	9.14E-02	mg/kg	2.2E-11	mg/m3	5.7E-04	(µg/m3)-1	1.3E-11	1.6E-09	mg/m3	NA	---	NA
				Aroclor-1260	1.34E-01	mg/kg	3.3E-11	mg/m3	5.7E-04	(µg/m3)-1	1.9E-11	2.3E-09	mg/m3	NA	---	NA
				Vinyl chloride	1.10E-02	mg/kg	1.1E-10	mg/m3	4.4E-06	(µg/m3)-1	4.7E-13	7.5E-09	mg/m3	1.0E-01	mg/m3	0.000000075
				Metals												
				Aluminum	8.40E+03	mg/kg	2.1E-06	mg/m3	NA	---	NA	1.4E-04	mg/m3	5.0E-03	mg/m3	0.029
				Arsenic	3.34E+00	mg/kg	8.1E-10	mg/m3	4.3E-03	(µg/m3)-1	3.5E-09	5.7E-08	mg/m3	1.5E-05	mg/m3	0.0038
				Chromium Total	1.80E+01	mg/kg	4.4E-09	mg/m3	8.4E-02	(µg/m3)-1	3.7E-07	3.1E-07	mg/m3	1.0E-04	mg/m3	0.0031
				Cobalt	5.54E+00	mg/kg	1.4E-09	mg/m3	9.0E-03	(µg/m3)-1	1.2E-08	9.5E-08	mg/m3	6.0E-06	mg/m3	0.016
				Iron	1.35E+04	mg/kg	3.3E-06	mg/m3	NA	---	NA	2.3E-04	mg/m3	NA	---	NA
				Manganese	2.61E+02	mg/kg	6.4E-08	mg/m3	NA	---	NA	4.5E-06	mg/m3	5.0E-05	mg/m3	0.089
				Mercury	5.53E-01	mg/kg	1.4E-10	mg/m3	NA	---	NA	9.5E-09	mg/m3	3.0E-04	mg/m3	0.000032
				Vanadium	2.28E+02	mg/kg	5.6E-08	mg/m3	1.5E-02	(µg/m3)-1	8.3E-07	3.9E-06	mg/m3	5.6E-05	mg/m3	0.069
			Inhalation Total								1.2E-06					0.21
	Aggregate Soil Total										1.4E-06					0.22
Soil Total											1.4E-06					0.22
										Total of Receptor Risks Across All Media	1.4E-06				Total of Receptor Hazards Across All Media	0.22

TABLE A-7.1e2-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	9.8E-09	mg/kg-day	NA	---	NA	2.7E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	3.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-07	9.5E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-06	8.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	5.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-07	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	6.4E-08	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	6.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.5E-07	1.7E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	7.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	2.8E-03	mg/kg-day	NA	---	NA	7.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0078
				Antimony	8.58E-01	mg/kg	3.0E-07	mg/kg-day	NA	---	NA	8.4E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0021
				Arsenic	2.83E+00	mg/kg	9.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.5E-06	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0092
				Chromium Total	1.31E+01	mg/kg	4.6E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.3E-06	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0043
				Cobalt	5.22E+00	mg/kg	1.8E-06	mg/kg-day	NA	---	NA	5.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Iron	1.28E+04	mg/kg	4.5E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.018
				Manganese	1.97E+02	mg/kg	6.9E-05	mg/kg-day	NA	---	NA	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0028
				Vanadium	2.98E+01	mg/kg	1.0E-05	mg/kg-day	NA	---	NA	2.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0058
			Ingestion Total								7.2E-06					0.067
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	6.5E-09	mg/kg-day	NA	---	NA	1.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	8.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	2.5E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.8E-06	6.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-07	1.3E-06	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	5.5E-08	mg/kg-day	NA	---	NA	1.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	5.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.9E-07	1.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-07	6.6E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	2.83E+00	mg/kg	2.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.9E-07	5.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0018
				Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.22E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.28E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	1.97E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.98E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								3.2E-06					0.0018

TABLE A-7.1e2-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	1.6E-12	mg/m3	NA	---	NA	4.6E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	5.7E-11	mg/m3	1.1E-04	(µg/m3)-1	6.3E-12	1.6E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	4.8E-11	mg/m3	1.1E-03	(µg/m3)-1	5.3E-11	1.4E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	8.7E-11	mg/m3	1.1E-04	(µg/m3)-1	9.6E-12	2.4E-10	mg/m3	NA	---	NA
				Carbazole	1.84E-01	mg/kg	1.1E-11	mg/m3	NA	---	NA	3.0E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	1.0E-11	mg/m3	1.2E-03	(µg/m3)-1	1.2E-11	2.9E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	4.6E-11	mg/m3	1.1E-04	(µg/m3)-1	5.1E-12	1.3E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	4.7E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00026
				Antimony	8.58E-01	mg/kg	5.0E-11	mg/m3	NA	---	NA	1.4E-10	mg/m3	NA	---	NA
				Arsenic	2.83E+00	mg/kg	1.7E-10	mg/m3	4.3E-03	(µg/m3)-1	7.1E-10	4.7E-10	mg/m3	1.5E-05	mg/m3	0.000031
				Chromium Total	1.31E+01	mg/kg	7.7E-10	mg/m3	8.4E-02	(µg/m3)-1	6.5E-08	2.2E-09	mg/m3	1.0E-04	mg/m3	0.000022
				Cobalt	5.22E+00	mg/kg	3.1E-10	mg/m3	9.0E-03	(µg/m3)-1	2.8E-09	8.6E-10	mg/m3	6.0E-06	mg/m3	0.00014
				Iron	1.28E+04	mg/kg	7.5E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
				Manganese	1.97E+02	mg/kg	1.2E-08	mg/m3	NA	---	NA	3.2E-08	mg/m3	5.0E-05	mg/m3	0.00065
				Vanadium	2.98E+01	mg/kg	1.7E-09	mg/m3	1.5E-02	(µg/m3)-1	2.6E-08	4.9E-09	mg/m3	3.9E-06	mg/m3	0.0012
			Inhalation Total								9.4E-08					0.0024
	Surface Soil Total										1.0E-05					0.071
Soil Total											1.0E-05					0.071
										Total of Receptor Risks Across All Media	1.0E-05				Total of Receptor Hazards Across All Media	0.071

TABLE A-7.1e2-7 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	1.8E-08	mg/kg-day	NA	---	NA	2.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	6.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-06	8.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	5.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.7E-05	7.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	9.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-06	1.4E-05	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	1.7E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-06	1.6E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	5.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-06	7.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	5.2E-03	mg/kg-day	NA	---	NA	7.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.073
				Antimony	8.58E-01	mg/kg	5.6E-07	mg/kg-day	NA	---	NA	7.8E-06	mg/kg-day	4.0E-04	mg/kg-day	0.020
				Arsenic	2.83E+00	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.8E-06	2.6E-05	mg/kg-day	3.0E-04	mg/kg-day	0.086
				Chromium Total	1.31E+01	mg/kg	8.5E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.9E-05	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	0.040
				Cobalt	5.22E+00	mg/kg	3.4E-06	mg/kg-day	NA	---	NA	4.8E-05	mg/kg-day	3.0E-04	mg/kg-day	0.16
				Iron	1.28E+04	mg/kg	8.4E-03	mg/kg-day	NA	---	NA	1.2E-01	mg/kg-day	7.0E-01	mg/kg-day	0.17
				Manganese	1.97E+02	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	1.8E-03	mg/kg-day	7.0E-02	mg/kg-day	0.026
				Vanadium	2.98E+01	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	2.7E-04	mg/kg-day	5.0E-03	mg/kg-day	0.05
			Ingestion Total								4.9E-05					0.624
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	5.1E-09	mg/kg-day	NA	---	NA	7.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.4E-07	3.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.3E-06	2.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	5.0E-06	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	4.4E-08	mg/kg-day	NA	---	NA	6.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-06	5.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.0E-07	2.6E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	2.83E+00	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.3E-07	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0072
				Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.22E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.28E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	1.97E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.98E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.0E-05					0.0072

TABLE A-7.1e2-7 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	3.3E-13	mg/m3	NA	---	NA	4.6E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	1.1E-11	mg/m3	1.1E-04	(µg/m3)-1	5.5E-12	1.6E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	9.7E-12	mg/m3	1.1E-03	(µg/m3)-1	4.6E-11	1.4E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	1.7E-11	mg/m3	1.1E-04	(µg/m3)-1	8.4E-12	2.4E-10	mg/m3	NA	---	NA
				Carbazole	1.84E-01	mg/kg	2.2E-12	mg/m3	NA	---	NA	3.0E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	2.1E-12	mg/m3	1.2E-03	(µg/m3)-1	1.1E-11	2.9E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	9.3E-12	mg/m3	1.1E-04	(µg/m3)-1	4.5E-12	1.3E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	9.3E-08	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00026
				Antimony	8.58E-01	mg/kg	1.0E-11	mg/m3	NA	---	NA	1.4E-10	mg/m3	NA	---	NA
				Arsenic	2.83E+00	mg/kg	3.3E-11	mg/m3	4.3E-03	(µg/m3)-1	1.4E-10	4.7E-10	mg/m3	1.5E-05	mg/m3	0.000031
				Chromium Total	1.31E+01	mg/kg	1.5E-10	mg/m3	8.4E-02	(µg/m3)-1	5.6E-08	2.2E-09	mg/m3	1.0E-04	mg/m3	0.000022
				Cobalt	5.22E+00	mg/kg	6.1E-11	mg/m3	9.0E-03	(µg/m3)-1	5.5E-10	8.6E-10	mg/m3	6.0E-06	mg/m3	0.00014
				Iron	1.28E+04	mg/kg	1.5E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
				Manganese	1.97E+02	mg/kg	2.3E-09	mg/m3	NA	---	NA	3.2E-08	mg/m3	5.0E-05	mg/m3	0.00065
				Vanadium	2.98E+01	mg/kg	3.5E-10	mg/m3	1.5E-02	(µg/m3)-1	5.2E-09	4.9E-09	mg/m3	3.9E-06	mg/m3	0.0012
			Inhalation Total								6.2E-08					0.0024
	Surface Soil Total										6.0E-05					0.63
Soil Total											6.0E-05					0.63
										Total of Receptor Risks Across All Media	6.0E-05				Total of Receptor Hazards Across All Media	0.63

TABLE A-7.2e2-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	9.8E-09	mg/kg-day	NA	---	NA	2.7E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	2.0E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.6E-07	5.5E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0055
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	6.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.5E-07	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	6.6E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-06	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	8.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.4E-07	2.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	3.4E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.5E-08	9.5E-07	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	7.5E-08	mg/kg-day	NA	---	NA	2.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	5.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.3E-07	1.7E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	9.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	2.7E-03	mg/kg-day	NA	---	NA	7.6E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0076
				Antimony	8.58E-01	mg/kg	3.0E-07	mg/kg-day	NA	---	NA	8.4E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0021
				Arsenic	4.24E+00	mg/kg	1.5E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.2E-06	4.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Cadmium	9.58E+00	mg/kg	3.3E-06	mg/kg-day	NA	---	NA	9.4E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0094
				Chromium Total	1.31E+01	mg/kg	4.6E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.3E-06	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0043
				Cobalt	5.02E+00	mg/kg	1.8E-06	mg/kg-day	NA	---	NA	4.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.016
				Iron	1.24E+04	mg/kg	4.3E-03	mg/kg-day	NA	---	NA	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	0.017
				Lead	3.75E+02	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	3.7E-04	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	6.7E-05	mg/kg-day	NA	---	NA	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0027
				Vanadium	2.79E+01	mg/kg	9.7E-06	mg/kg-day	NA	---	NA	2.7E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0054
			Ingestion Total								1.1E-05					0.084
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	6.5E-09	mg/kg-day	NA	---	NA	1.8E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	3.9E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	5.1E-08	1.1E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0011
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	5.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-07	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	5.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.2E-06	1.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	7.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.5E-07	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	2.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.1E-08	8.2E-07	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	6.4E-08	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-07	1.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	7.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA

TABLE A-7.2e2-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Dermal	Arsenic	4.24E+00	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.4E-07	8.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0027
				Cadmium	9.58E+00	mg/kg	2.2E-08	mg/kg-day	NA	---	NA	6.2E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0025
				Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.02E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.24E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.75E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.79E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								6.2E-06					0.0063
			Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	1.6E-12	mg/m3	NA	---	NA	4.6E-12	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	3.3E-16	mg/m3	3.8E+01	(µg/m3)-1	1.3E-11	9.3E-16	mg/m3	4.0E-08	mg/m3	0.000000023
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	1.0E-10	mg/m3	1.1E-04	(µg/m3)-1	1.1E-11	2.9E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	1.1E-10	mg/m3	1.1E-03	(µg/m3)-1	1.2E-10	3.1E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	1.5E-10	mg/m3	1.1E-04	(µg/m3)-1	1.6E-11	4.1E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	5.7E-11	mg/m3	1.1E-04	(µg/m3)-1	6.3E-12	1.6E-10	mg/m3	NA	---	NA
				Carbazole	2.15E-01	mg/kg	1.3E-11	mg/m3	NA	---	NA	3.5E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	9.9E-12	mg/m3	1.2E-03	(µg/m3)-1	1.2E-11	2.8E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	5.5E-11	mg/m3	1.1E-04	(µg/m3)-1	6.1E-12	1.5E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	4.6E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00025
				Antimony	8.58E-01	mg/kg	5.0E-11	mg/m3	NA	---	NA	1.4E-10	mg/m3	NA	---	NA
				Arsenic	4.24E+00	mg/kg	2.5E-10	mg/m3	4.3E-03	(µg/m3)-1	1.1E-09	7.0E-10	mg/m3	1.5E-05	mg/m3	0.000046
				Cadmium	9.58E+00	mg/kg	5.6E-10	mg/m3	1.8E-03	(µg/m3)-1	1.0E-09	1.6E-09	mg/m3	1.0E-05	mg/m3	0.00016
				Chromium Total	1.31E+01	mg/kg	7.7E-10	mg/m3	8.4E-02	(µg/m3)-1	6.4E-08	2.1E-09	mg/m3	1.0E-04	mg/m3	0.000021
				Cobalt	5.02E+00	mg/kg	2.9E-10	mg/m3	9.0E-03	(µg/m3)-1	2.7E-09	8.3E-10	mg/m3	6.0E-06	mg/m3	0.00014
				Iron	1.24E+04	mg/kg	7.3E-07	mg/m3	NA	---	NA	2.0E-06	mg/m3	NA	---	NA
				Lead	3.75E+02	mg/kg	2.2E-08	mg/m3	NA	---	NA	6.2E-08	mg/m3	NA	---	NA
				Manganese	1.92E+02	mg/kg	1.1E-08	mg/m3	NA	---	NA	3.1E-08	mg/m3	5.0E-05	mg/m3	0.00063
				Vanadium	2.79E+01	mg/kg	1.6E-09	mg/m3	1.5E-02	(µg/m3)-1	2.5E-08	4.6E-09	mg/m3	3.9E-06	mg/m3	0.0012
			Inhalation Total								9.4E-08					0.0024
	Aggregate Soil Total										1.8E-05					0.093
Soil Total											1.8E-05					0.093
										Total of Receptor Risks Across All Media	1.8E-05				Total of Receptor Hazards Across All Media	0.093

TABLE A-7.2e2-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	6.7E-10	mg/kg-day	NA	---	NA	4.7E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	1.4E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.8E-08	9.5E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0095
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-08	3.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	4.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.3E-07	3.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.4E-08	4.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.7E-09	1.6E-06	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	5.2E-09	mg/kg-day	NA	---	NA	3.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	4.1E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.0E-08	2.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-08	1.6E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	1.9E-04	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.013
				Antimony	8.58E-01	mg/kg	2.1E-08	mg/kg-day	NA	---	NA	1.4E-06	mg/kg-day	4.0E-04	mg/kg-day	0.0036
				Arsenic	4.24E+00	mg/kg	1.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.5E-07	7.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.024
				Cadmium	9.58E+00	mg/kg	2.3E-07	mg/kg-day	NA	---	NA	1.6E-05	mg/kg-day	1.0E-03	mg/kg-day	0.016
				Chromium Total	1.31E+01	mg/kg	3.1E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.6E-07	2.2E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0073
				Cobalt	5.02E+00	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	8.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.028
				Iron	1.24E+04	mg/kg	3.0E-04	mg/kg-day	NA	---	NA	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	0.030
				Lead	3.75E+02	mg/kg	9.0E-06	mg/kg-day	NA	---	NA	6.3E-04	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	4.6E-06	mg/kg-day	NA	---	NA	3.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0046
				Vanadium	2.79E+01	mg/kg	6.7E-07	mg/kg-day	NA	---	NA	4.7E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0093
			Ingestion Total								7.8E-07					0.14
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	2.0E-10	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	1.2E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.6E-09	8.5E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00085
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-08	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-08	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	9.1E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.6E-10	6.4E-07	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	2.0E-09	mg/kg-day	NA	---	NA	1.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-08	1.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	8.8E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.4E-09	6.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.24E+00	mg/kg	9.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-08	6.4E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0021
				Cadmium	9.58E+00	mg/kg	6.9E-10	mg/kg-day	NA	---	NA	4.8E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0019

TABLE A-7.2e2-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Dermal	Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.02E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.24E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.75E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.79E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.9E-07					0.0049
			Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	3.4E-11	mg/m3	NA	---	NA	2.4E-09	mg/m3	NA	---	NA
				Dioxins/Furans			0.0E+00									
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	6.9E-15	mg/m3	3.8E+01	(µg/m3)-1	2.6E-10	4.8E-13	mg/m3	4.0E-08	mg/m3	0.000012
				PAHs			0.0E+00									
				Benzo(a)anthracene	1.77E+00	mg/kg	2.2E-09	mg/m3	1.1E-04	(µg/m3)-1	2.4E-10	1.5E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	2.3E-09	mg/m3	1.1E-03	(µg/m3)-1	2.6E-09	1.6E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	3.1E-09	mg/m3	1.1E-04	(µg/m3)-1	3.4E-10	2.2E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	1.2E-09	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	8.3E-08	mg/m3	NA	---	NA
				Carbazole	2.15E-01	mg/kg	2.6E-10	mg/m3	NA	---	NA	1.8E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	2.1E-10	mg/m3	1.2E-03	(µg/m3)-1	2.5E-10	1.4E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	1.2E-09	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	8.1E-08	mg/m3	NA	---	NA
				Metals			0.0E+00									
				Aluminum	7.75E+03	mg/kg	9.5E-06	mg/m3	NA	---	NA	6.6E-04	mg/m3	5.0E-03	mg/m3	0.13
				Antimony	8.58E-01	mg/kg	1.0E-09	mg/m3	NA	---	NA	7.3E-08	mg/m3	NA	---	NA
				Arsenic	4.24E+00	mg/kg	5.2E-09	mg/m3	4.3E-03	(µg/m3)-1	2.2E-08	3.6E-07	mg/m3	1.5E-05	mg/m3	0.024
				Cadmium	9.58E+00	mg/kg	1.2E-08	mg/m3	1.8E-03	(µg/m3)-1	2.1E-08	8.2E-07	mg/m3	1.0E-05	mg/m3	0.082
				Chromium Total	1.31E+01	mg/kg	1.6E-08	mg/m3	8.4E-02	(µg/m3)-1	1.3E-06	1.1E-06	mg/m3	1.0E-04	mg/m3	0.011
				Cobalt	5.02E+00	mg/kg	6.1E-09	mg/m3	9.0E-03	(µg/m3)-1	5.5E-08	4.3E-07	mg/m3	6.0E-06	mg/m3	0.072
				Iron	1.24E+04	mg/kg	1.5E-05	mg/m3	NA	---	NA	1.1E-03	mg/m3	NA	---	NA
				Lead	3.75E+02	mg/kg	4.6E-07	mg/m3	NA	---	NA	3.2E-05	mg/m3	NA	---	NA
				Manganese	1.92E+02	mg/kg	2.3E-07	mg/m3	NA	---	NA	1.6E-05	mg/m3	5.0E-05	mg/m3	0.33
				Vanadium	2.79E+01	mg/kg	3.4E-08	mg/m3	1.5E-02	(µg/m3)-1	5.1E-07	2.4E-06	mg/m3	5.6E-05	mg/m3	0.043
			Inhalation Total								2.0E-06					0.69
	Aggregate Soil Total										2.9E-06					0.84
Soil Total											2.9E-06					0.84
										Total of Receptor Risks Across All Media	2.9E-06				Total of Receptor Hazards Across All Media	0.84

TABLE A-7.1e2-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	1.5E-09	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	5.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-08	4.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	4.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.3E-07	3.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.0E-08	6.4E-07	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	1.0E-08	mg/kg-day	NA	---	NA	7.9E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	9.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.1E-08	7.6E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	4.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.2E-08	3.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	4.4E-04	mg/kg-day	NA	---	NA	3.4E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0034
				Antimony	8.58E-01	mg/kg	4.7E-08	mg/kg-day	NA	---	NA	3.7E-07	mg/kg-day	4.0E-04	mg/kg-day	0.00092
				Arsenic	2.83E+00	mg/kg	1.6E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.3E-07	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0040
				Chromium Total	1.31E+01	mg/kg	7.2E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.6E-07	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0019
				Cobalt	5.22E+00	mg/kg	2.9E-07	mg/kg-day	NA	---	NA	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0075
				Iron	1.28E+04	mg/kg	7.1E-04	mg/kg-day	NA	---	NA	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0078
				Manganese	1.97E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	8.4E-05	mg/kg-day	7.0E-02	mg/kg-day	0.0012
				Vanadium	2.98E+01	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	1.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0025
			Ingestion Total								1.1E-06					0.029
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	2.0E-10	mg/kg-day	NA	---	NA	1.6E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	9.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.7E-09	7.2E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.7E-08	6.1E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-08	1.1E-07	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	1.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-08	1.3E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	7.5E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.5E-09	5.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	2.83E+00	mg/kg	6.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.3E-09	4.8E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00016
				Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.22E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.28E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	1.97E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.98E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.0E-07					0.00016

TABLE A-7.1e2-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	5.2E-13	mg/m3	NA	---	NA	4.0E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	1.8E-11	mg/m3	1.1E-04	(µg/m3)-1	2.0E-12	1.4E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	1.5E-11	mg/m3	1.1E-03	(µg/m3)-1	1.7E-11	1.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	2.8E-11	mg/m3	1.1E-04	(µg/m3)-1	3.0E-12	2.1E-10	mg/m3	NA	---	NA
				Carbazole	1.84E-01	mg/kg	3.4E-12	mg/m3	NA	---	NA	2.6E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	3.3E-12	mg/m3	1.2E-03	(µg/m3)-1	3.9E-12	2.5E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	1.5E-11	mg/m3	1.1E-04	(µg/m3)-1	1.6E-12	1.1E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	1.5E-07	mg/m3	NA	---	NA	1.1E-06	mg/m3	5.0E-03	mg/m3	0.00023
				Antimony	8.58E-01	mg/kg	1.6E-11	mg/m3	NA	---	NA	1.2E-10	mg/m3	NA	---	NA
				Arsenic	2.83E+00	mg/kg	5.2E-11	mg/m3	4.3E-03	(µg/m3)-1	2.3E-10	4.1E-10	mg/m3	1.5E-05	mg/m3	0.000027
				Chromium Total	1.31E+01	mg/kg	2.4E-10	mg/m3	8.4E-02	(µg/m3)-1	2.0E-08	1.9E-09	mg/m3	1.0E-04	mg/m3	0.000019
				Cobalt	5.22E+00	mg/kg	9.7E-11	mg/m3	9.0E-03	(µg/m3)-1	8.7E-10	7.5E-10	mg/m3	6.0E-06	mg/m3	0.00013
				Iron	1.28E+04	mg/kg	2.4E-07	mg/m3	NA	---	NA	1.8E-06	mg/m3	NA	---	NA
				Manganese	1.97E+02	mg/kg	3.6E-09	mg/m3	NA	---	NA	2.8E-08	mg/m3	5.0E-05	mg/m3	0.00057
				Vanadium	2.98E+01	mg/kg	5.5E-10	mg/m3	1.5E-02	(µg/m3)-1	8.3E-09	4.3E-09	mg/m3	3.9E-06	mg/m3	0.0011
			Inhalation Total								3.0E-08					0.0021
	Surface Soil Total										1.3E-06					0.032
Soil Total											1.3E-06					0.032
										Total of Receptor Risks Across All Media	1.3E-06				Total of Receptor Hazards Across All Media	0.032

TABLE A-7.1e2-7 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	1.1E-09	mg/kg-day	NA	---	NA	3.7E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-07	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.5E-06	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	5.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-07	2.0E-06	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	6.9E-09	mg/kg-day	NA	---	NA	2.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	6.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.2E-07	2.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	3.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-07	1.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	3.0E-04	mg/kg-day	NA	---	NA	1.0E-02	mg/kg-day	1.0E+00	mg/kg-day	0.010
				Antimony	8.58E-01	mg/kg	3.2E-08	mg/kg-day	NA	---	NA	1.1E-06	mg/kg-day	4.0E-04	mg/kg-day	0.0028
				Arsenic	2.83E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-07	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.012
				Chromium Total	1.31E+01	mg/kg	4.9E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.6E-06	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0057
				Cobalt	5.22E+00	mg/kg	2.0E-07	mg/kg-day	NA	---	NA	6.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.023
				Iron	1.28E+04	mg/kg	4.8E-04	mg/kg-day	NA	---	NA	1.7E-02	mg/kg-day	7.0E-01	mg/kg-day	0.024
				Manganese	1.97E+02	mg/kg	7.4E-06	mg/kg-day	NA	---	NA	2.6E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0037
				Vanadium	2.98E+01	mg/kg	1.1E-06	mg/kg-day	NA	---	NA	3.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0078
			Ingestion Total								4.1E-06					0.090
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	1.2E-10	mg/kg-day	NA	---	NA	4.1E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	5.3E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-08	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-07	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	8.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-08	2.9E-07	mg/kg-day	NA	---	NA
				Carbazole	1.84E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	3.5E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	9.7E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.6E-08	3.4E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-08	1.5E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	2.83E+00	mg/kg	3.6E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.4E-09	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00042
				Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.22E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.28E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	1.97E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.98E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								3.5E-07					0.00042

TABLE A-7.1e2-7 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E2	Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	1.9E-14	mg/m3	NA	---	NA	6.6E-13	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	9.76E-01	mg/kg	6.6E-13	mg/m3	1.1E-04	(µg/m3)-1	4.7E-13	2.3E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	8.23E-01	mg/kg	5.6E-13	mg/m3	1.1E-03	(µg/m3)-1	3.9E-12	1.9E-11	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.49E+00	mg/kg	1.0E-12	mg/m3	1.1E-04	(µg/m3)-1	7.1E-13	3.5E-11	mg/m3	NA	---	NA
				Carbazole	1.84E-01	mg/kg	1.2E-13	mg/m3	NA	---	NA	4.4E-12	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.77E-01	mg/kg	1.2E-13	mg/m3	1.2E-03	(µg/m3)-1	9.3E-13	4.2E-12	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.90E-01	mg/kg	5.3E-13	mg/m3	1.1E-04	(µg/m3)-1	3.8E-13	1.9E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.96E+03	mg/kg	5.4E-09	mg/m3	NA	---	NA	1.9E-07	mg/m3	5.0E-03	mg/m3	0.000038
				Antimony	8.58E-01	mg/kg	5.8E-13	mg/m3	NA	---	NA	2.0E-11	mg/m3	NA	---	NA
				Arsenic	2.83E+00	mg/kg	1.9E-12	mg/m3	4.3E-03	(µg/m3)-1	8.2E-12	6.7E-11	mg/m3	1.5E-05	mg/m3	0.0000045
				Chromium Total	1.31E+01	mg/kg	8.8E-12	mg/m3	8.4E-02	(µg/m3)-1	4.8E-09	3.1E-10	mg/m3	1.0E-04	mg/m3	0.0000031
				Cobalt	5.22E+00	mg/kg	3.5E-12	mg/m3	9.0E-03	(µg/m3)-1	3.2E-11	1.2E-10	mg/m3	6.0E-06	mg/m3	0.000021
				Iron	1.28E+04	mg/kg	8.7E-09	mg/m3	NA	---	NA	3.0E-07	mg/m3	NA	---	NA
				Manganese	1.97E+02	mg/kg	1.3E-10	mg/m3	NA	---	NA	4.7E-09	mg/m3	5.0E-05	mg/m3	0.000093
				Vanadium	2.98E+01	mg/kg	2.0E-11	mg/m3	1.5E-02	(µg/m3)-1	3.0E-10	7.1E-10	mg/m3	3.9E-06	mg/m3	0.00018
			Inhalation Total								5.1E-09					0.00034
	Surface Soil Total										4.5E-06					0.091
Soil Total											4.5E-06					0.091
										Total of Receptor Risks Across All Media	4.5E-06				Total of Receptor Hazards Across All Media	0.091

TABLE A-7.2e2-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	1.5E-09	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	3.1E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	4.0E-08	2.4E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0024
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	9.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.1E-08	7.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	1.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.6E-07	8.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-07	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	5.4E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.9E-09	4.2E-07	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	1.2E-08	mg/kg-day	NA	---	NA	9.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	9.3E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.8E-08	7.2E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-08	4.0E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	4.3E-04	mg/kg-day	NA	---	NA	3.3E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0033
				Antimony	8.58E-01	mg/kg	4.7E-08	mg/kg-day	NA	---	NA	3.7E-07	mg/kg-day	4.0E-04	mg/kg-day	0.00092
				Arsenic	4.24E+00	mg/kg	2.3E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.5E-07	1.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0061
				Cadmium	9.58E+00	mg/kg	5.3E-07	mg/kg-day	NA	---	NA	4.1E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0041
				Chromium Total	1.31E+01	mg/kg	7.2E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.6E-07	5.6E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0019
				Cobalt	5.02E+00	mg/kg	2.8E-07	mg/kg-day	NA	---	NA	2.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0072
				Iron	1.24E+04	mg/kg	6.8E-04	mg/kg-day	NA	---	NA	5.3E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0076
				Lead	3.75E+02	mg/kg	2.1E-05	mg/kg-day	NA	---	NA	1.6E-04	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	8.2E-05	mg/kg-day	7.0E-02	mg/kg-day	0.0012
				Vanadium	2.79E+01	mg/kg	1.5E-06	mg/kg-day	NA	---	NA	1.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0024
			Ingestion Total								1.8E-06					0.037
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	2.0E-10	mg/kg-day	NA	---	NA	1.6E-09	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	1.2E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.6E-09	9.6E-14	mg/kg-day	1.0E-09	mg/kg-day	0.000096
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-08	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-07	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-08	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	9.2E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.7E-10	7.1E-08	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	2.0E-09	mg/kg-day	NA	---	NA	1.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-08	1.2E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	8.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.5E-09	6.9E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA

TABLE A-7.2e2-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Dermal	Arsenic	4.24E+00	mg/kg	9.3E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-08	7.2E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00024
				Cadmium	9.58E+00	mg/kg	7.0E-10	mg/kg-day	NA	---	NA	5.4E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00022
				Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.02E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.24E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.75E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.79E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								2.0E-07					0.00055
			Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	5.2E-13	mg/m3	NA	---	NA	4.0E-12	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	1.0E-16	mg/m3	3.8E+01	(µg/m3)-1	4.0E-12	8.1E-16	mg/m3	4.0E-08	mg/m3	0.000000020
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	3.3E-11	mg/m3	1.1E-04	(µg/m3)-1	3.6E-12	2.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	3.5E-11	mg/m3	1.1E-03	(µg/m3)-1	3.9E-11	2.7E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	4.7E-11	mg/m3	1.1E-04	(µg/m3)-1	5.1E-12	3.6E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	1.8E-11	mg/m3	1.1E-04	(µg/m3)-1	2.0E-12	1.4E-10	mg/m3	NA	---	NA
				Carbazole	2.15E-01	mg/kg	4.0E-12	mg/m3	NA	---	NA	3.1E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	3.1E-12	mg/m3	1.2E-03	(µg/m3)-1	3.8E-12	2.4E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	1.7E-11	mg/m3	1.1E-04	(µg/m3)-1	1.9E-12	1.4E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	1.4E-07	mg/m3	NA	---	NA	1.1E-06	mg/m3	5.0E-03	mg/m3	0.00022
				Antimony	8.58E-01	mg/kg	1.6E-11	mg/m3	NA	---	NA	1.2E-10	mg/m3	NA	---	NA
				Arsenic	4.24E+00	mg/kg	7.9E-11	mg/m3	4.3E-03	(µg/m3)-1	3.4E-10	6.1E-10	mg/m3	1.5E-05	mg/m3	0.000041
				Cadmium	9.58E+00	mg/kg	1.8E-10	mg/m3	1.8E-03	(µg/m3)-1	3.2E-10	1.4E-09	mg/m3	1.0E-05	mg/m3	0.00014
				Chromium Total	1.31E+01	mg/kg	2.4E-10	mg/m3	8.4E-02	(µg/m3)-1	2.0E-08	1.9E-09	mg/m3	1.0E-04	mg/m3	0.000019
				Cobalt	5.02E+00	mg/kg	9.3E-11	mg/m3	9.0E-03	(µg/m3)-1	8.4E-10	7.2E-10	mg/m3	6.0E-06	mg/m3	0.00012
				Iron	1.24E+04	mg/kg	2.3E-07	mg/m3	NA	---	NA	1.8E-06	mg/m3	NA	---	NA
				Lead	3.75E+02	mg/kg	6.9E-09	mg/m3	NA	---	NA	5.4E-08	mg/m3	NA	---	NA
				Manganese	1.92E+02	mg/kg	3.5E-09	mg/m3	NA	---	NA	2.8E-08	mg/m3	5.0E-05	mg/m3	0.00055
				Vanadium	2.79E+01	mg/kg	5.2E-10	mg/m3	1.5E-02	(µg/m3)-1	7.7E-09	4.0E-09	mg/m3	3.9E-06	mg/m3	0.0010
			Inhalation Total								3.0E-08					0.0021
	Aggregate Soil Total										2.0E-06					0.040
Soil Total											2.0E-06					0.040
										Total of Receptor Risks Across All Media	2.0E-06				Total of Receptor Hazards Across All Media	0.040

TABLE A-7.2e2-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Ingestion	Di-n-octyl phthalate	2.80E-02	mg/kg	4.1E-11	mg/kg-day	NA	---	NA	2.8E-09	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	8.2E-15	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.1E-09	5.7E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00057
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	2.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-09	1.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	2.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-08	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	3.7E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-09	2.6E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	1.4E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.0E-10	9.9E-08	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	3.1E-10	mg/kg-day	NA	---	NA	2.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	2.5E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.8E-09	1.7E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	1.4E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-09	9.6E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00079
				Antimony	8.58E-01	mg/kg	1.2E-09	mg/kg-day	NA	---	NA	8.7E-08	mg/kg-day	4.0E-04	mg/kg-day	0.00022
				Arsenic	4.24E+00	mg/kg	6.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.3E-09	4.3E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0014
				Cadmium	9.58E+00	mg/kg	1.4E-08	mg/kg-day	NA	---	NA	9.7E-07	mg/kg-day	1.0E-03	mg/kg-day	0.00097
				Chromium Total	1.31E+01	mg/kg	1.9E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	9.5E-09	1.3E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00044
				Cobalt	5.02E+00	mg/kg	7.3E-09	mg/kg-day	NA	---	NA	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0017
				Iron	1.24E+04	mg/kg	1.8E-05	mg/kg-day	NA	---	NA	1.3E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0018
				Lead	3.75E+02	mg/kg	5.4E-07	mg/kg-day	NA	---	NA	3.8E-05	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	2.8E-07	mg/kg-day	NA	---	NA	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00028
				Vanadium	2.79E+01	mg/kg	4.1E-08	mg/kg-day	NA	---	NA	2.8E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00056
			Ingestion Total								4.7E-08					0.0088
			Dermal	Di-n-octyl phthalate	2.80E-02	mg/kg	1.3E-11	mg/kg-day	NA	---	NA	9.4E-10	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	8.1E-16	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.1E-10	5.7E-14	mg/kg-day	1.0E-09	mg/kg-day	0.000057
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.0E-10	7.7E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	1.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.7E-09	8.3E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	1.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-09	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	6.1E-10	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.4E-11	4.2E-08	mg/kg-day	NA	---	NA
				Carbazole	2.15E-01	mg/kg	1.3E-10	mg/kg-day	NA	---	NA	9.4E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	1.1E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.7E-10	7.4E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	5.9E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.3E-10	4.1E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.58E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.24E+00	mg/kg	6.1E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.2E-10	4.3E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00014
				Cadmium	9.58E+00	mg/kg	4.6E-11	mg/kg-day	NA	---	NA	3.2E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00013

TABLE A-7.2e2-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Dermal	Chromium Total	1.31E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.02E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.24E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.75E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.92E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Vanadium	2.79E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.3E-08					0.00033
			Inhalation	Di-n-octyl phthalate	2.80E-02	mg/kg	6.8E-12	mg/m3	NA	---	NA	4.8E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	5.65E-06	mg/kg	1.4E-15	mg/m3	3.8E+01	(µg/m3)-1	5.2E-11	9.7E-14	mg/m3	4.0E-08	mg/m3	0.0000024
				PAHs												
				Benzo(a)anthracene	1.77E+00	mg/kg	4.3E-10	mg/m3	1.1E-04	(µg/m3)-1	4.7E-11	3.0E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.90E+00	mg/kg	4.6E-10	mg/m3	1.1E-03	(µg/m3)-1	5.1E-10	3.2E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.52E+00	mg/kg	6.2E-10	mg/m3	1.1E-04	(µg/m3)-1	6.8E-11	4.3E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	9.71E-01	mg/kg	2.4E-10	mg/m3	1.1E-04	(µg/m3)-1	2.6E-11	1.7E-08	mg/m3	NA	---	NA
				Carbazole	2.15E-01	mg/kg	5.3E-11	mg/m3	NA	---	NA	3.7E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.69E-01	mg/kg	4.1E-11	mg/m3	1.2E-03	(µg/m3)-1	5.0E-11	2.9E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.42E-01	mg/kg	2.3E-10	mg/m3	1.1E-04	(µg/m3)-1	2.5E-11	1.6E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	7.75E+03	mg/kg	1.9E-06	mg/m3	NA	---	NA	1.3E-04	mg/m3	5.0E-03	mg/m3	0.027
				Antimony	8.58E-01	mg/kg	2.1E-10	mg/m3	NA	---	NA	1.5E-08	mg/m3	NA	---	NA
				Arsenic	4.24E+00	mg/kg	1.0E-09	mg/m3	4.3E-03	(µg/m3)-1	4.5E-09	7.3E-08	mg/m3	1.5E-05	mg/m3	0.0048
				Cadmium	9.58E+00	mg/kg	2.3E-09	mg/m3	1.8E-03	(µg/m3)-1	4.2E-09	1.6E-07	mg/m3	1.0E-05	mg/m3	0.016
				Chromium Total	1.31E+01	mg/kg	3.2E-09	mg/m3	8.4E-02	(µg/m3)-1	2.7E-07	2.2E-07	mg/m3	1.0E-04	mg/m3	0.0022
				Cobalt	5.02E+00	mg/kg	1.2E-09	mg/m3	9.0E-03	(µg/m3)-1	1.1E-08	8.6E-08	mg/m3	6.0E-06	mg/m3	0.014
				Iron	1.24E+04	mg/kg	3.0E-06	mg/m3	NA	---	NA	2.1E-04	mg/m3	NA	---	NA
				Lead	3.75E+02	mg/kg	9.2E-08	mg/m3	NA	---	NA	6.4E-06	mg/m3	NA	---	NA
				Manganese	1.92E+02	mg/kg	4.7E-08	mg/m3	NA	---	NA	3.3E-06	mg/m3	5.0E-05	mg/m3	0.065
				Vanadium	2.79E+01	mg/kg	6.8E-09	mg/m3	1.5E-02	(µg/m3)-1	1.0E-07	4.8E-07	mg/m3	5.6E-05	mg/m3	0.0085
			Inhalation Total								3.9E-07					0.14
	Aggregate Soil Total										4.5E-07					0.15
Soil Total											4.5E-07					0.15
										Total of Receptor Risks Across All Media	4.5E-07				Total of Receptor Hazards Across All Media	0.15

TABLE A-7.1e3-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	3.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	5.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	3.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.014
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	6.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.020
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	2.8E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0093
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	9.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.032
				Iron	1.55E+04	mg/kg	---	---	---	---	---	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	0.030
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	4.3E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0062
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	2.0E-06	mg/kg-day	1.6E-04	mg/kg-day	0.012
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	5.4E-05	mg/kg-day	5.0E-03	mg/kg-day	0.011
			Ingestion Total								---					0.14
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	9.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.8E-07	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	7.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0024

TABLE A-7.1e3-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Dermal	Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.55E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0024
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	9.6E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.7E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	7.2E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	3.0E-09	mg/m3	1.5E-05	mg/m3	0.00020
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	1.4E-08	mg/m3	1.0E-04	mg/m3	0.00014
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	4.8E-09	mg/m3	6.0E-06	mg/m3	0.00080
				Iron	1.55E+04	mg/kg	---	---	---	---	---	1.1E-05	mg/m3	NA	---	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	1.0E-09	mg/m3	3.0E-04	mg/m3	0.0000033
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	2.7E-08	mg/m3	3.9E-06	mg/m3	0.0069
			Inhalation Total								---					0.014
	Surface Soil Total										---					0.15
Soil Total											---					0.15
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.15

TABLE A-7.1e3-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	2.9E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	2.3E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	1.8E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	2.1E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	5.2E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	3.3E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	1.3E-01	mg/kg-day	1.0E+00	mg/kg-day	0.13
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	5.6E-05	mg/kg-day	3.0E-04	mg/kg-day	0.19
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	2.6E-04	mg/kg-day	3.0E-03	mg/kg-day	0.087
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	8.9E-05	mg/kg-day	3.0E-04	mg/kg-day	0.30
				Iron	1.55E+04	mg/kg	---	---	---	---	---	2.0E-01	mg/kg-day	7.0E-01	mg/kg-day	0.28
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	4.0E-03	mg/kg-day	7.0E-02	mg/kg-day	0.058
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	1.9E-05	mg/kg-day	1.6E-04	mg/kg-day	0.12
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	5.0E-04	mg/kg-day	5.0E-03	mg/kg-day	0.10
			Ingestion Total								---					1.3
				Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	8.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	8.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	6.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	7.6E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	5.1E-06	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	4.5E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	4.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.016
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.55E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.016

TABLE A-7.1e3-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	9.6E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.7E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	7.2E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	3.0E-09	mg/m3	1.5E-05	mg/m3	0.00020
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	1.4E-08	mg/m3	1.0E-04	mg/m3	0.00014
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	4.8E-09	mg/m3	6.0E-06	mg/m3	0.00080
				Iron	1.55E+04	mg/kg	---	---	---	---	---	1.1E-05	mg/m3	NA	---	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	1.0E-09	mg/m3	3.0E-04	mg/m3	0.0000033
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	2.7E-08	mg/m3	3.9E-06	mg/m3	0.0069
			Inhalation Total								---					0.014
	Surface Soil Total										---					1.3
Soil Total											---					1.3
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.3

TABLE A-7.1e3-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	3.6E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.0E-06	---	---	---	---	---
				Benzo(a)pyrene	1.40E+00	mg/kg	2.2E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.8E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.64E+00	mg/kg	2.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.0E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.10E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.4E-07	---	---	---	---	---
				Carbazole	4.07E-01	mg/kg	6.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	4.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.7E-06	---	---	---	---	---
				Metals												
				Aluminum	1.04E+04	mg/kg	1.6E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.41E+00	mg/kg	6.9E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.0E-05	---	---	---	---	---
				Chromium Total	2.03E+01	mg/kg	3.2E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.8E-05	---	---	---	---	---
				Cobalt	6.94E+00	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.55E+04	mg/kg	2.4E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.15E+02	mg/kg	4.9E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.46E+00	mg/kg	2.3E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.94E+01	mg/kg	6.2E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.8E-04					---
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-06	---	---	---	---	---
				Benzo(a)pyrene	1.40E+00	mg/kg	9.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.6E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.64E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.10E+00	mg/kg	7.1E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.1E-07	---	---	---	---	---
				Carbazole	4.07E-01	mg/kg	2.6E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	6.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-06	---	---	---	---	---
				Metals												
				Aluminum	1.04E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.41E+00	mg/kg	6.5E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.8E-07	---	---	---	---	---
				Chromium Total	2.03E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---

TABLE A-7.1e3-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Dermal	Cobalt	6.94E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.55E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.15E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.46E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.94E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.1E-05					---
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	6.8E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	5.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	---	---	---	---	---
				Benzo(a)pyrene	1.40E+00	mg/kg	4.1E-10	mg/m3	1.1E-03	(µg/m3)-1	1.1E-09	---	---	---	---	---
				Benzo(b)fluoranthene	1.64E+00	mg/kg	4.8E-10	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	---	---	---	---	---
				Benzo(k)fluoranthene	1.10E+00	mg/kg	3.3E-10	mg/m3	1.1E-04	(µg/m3)-1	9.0E-11	---	---	---	---	---
				Carbazole	4.07E-01	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	7.6E-11	mg/m3	1.2E-03	(µg/m3)-1	2.3E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	2.9E-10	mg/m3	1.1E-04	(µg/m3)-1	7.9E-11	---	---	---	---	---
				Metals												
				Aluminum	1.04E+04	mg/kg	3.1E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.41E+00	mg/kg	1.3E-09	mg/m3	4.3E-03	(µg/m3)-1	5.6E-09	---	---	---	---	---
				Chromium Total	2.03E+01	mg/kg	6.0E-09	mg/m3	8.4E-02	(µg/m3)-1	1.3E-06	---	---	---	---	---
				Cobalt	6.94E+00	mg/kg	2.1E-09	mg/m3	9.0E-03	(µg/m3)-1	1.8E-08	---	---	---	---	---
				Iron	1.55E+04	mg/kg	4.6E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	3.15E+02	mg/kg	9.3E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	1.46E+00	mg/kg	4.3E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.8E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	3.94E+01	mg/kg	1.2E-08	mg/m3	1.5E-02	(µg/m3)-1	1.7E-07	---	---	---	---	---
			Inhalation Total								1.5E-06					---
	Surface Soil Total										2.2E-04					---
Soil Total											2.2E-04					---
										Total of Receptor Risks Across All Media	2.2E-04				Total of Receptor Hazards Across All Media	---

TABLE A-7.1e3-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	7.2E-08	mg/kg-day	NA	---	NA	2.0E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	5.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.2E-07	1.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	4.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.2E-06	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	5.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.5E-08	9.7E-07	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	1.3E-07	mg/kg-day	NA	---	NA	3.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	8.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.9E-07	2.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-07	8.5E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	3.3E-03	mg/kg-day	NA	---	NA	9.2E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0092
				Arsenic	4.41E+00	mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.1E-06	3.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.013
				Chromium Total	2.03E+01	mg/kg	6.4E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.2E-06	1.8E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0060
				Cobalt	6.94E+00	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	6.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.020
				Iron	1.55E+04	mg/kg	4.9E-03	mg/kg-day	NA	---	NA	1.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.019
				Manganese	3.15E+02	mg/kg	9.9E-05	mg/kg-day	NA	---	NA	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0040
				Mercury	1.46E+00	mg/kg	4.6E-07	mg/kg-day	NA	---	NA	1.3E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0080
				Thallium	1.30E+00	mg/kg	4.1E-07	mg/kg-day	NA	---	NA	1.1E-06	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	1.2E-05	mg/kg-day	NA	---	NA	3.5E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0069
			Ingestion Total								1.0E-05					0.087
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	4.8E-08	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	3.8E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.8E-06	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.2E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	3.0E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.2E-08	8.3E-07	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	3.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	6.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.1E-07	1.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	2.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-07	7.3E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.41E+00	mg/kg	2.7E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.1E-07	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0026
				Chromium Total	2.03E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.94E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.55E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.15E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.46E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.6E-06					0.0026

TABLE A-7.1e3-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	1.2E-11	mg/m3	NA	---	NA	3.4E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	9.7E-11	mg/m3	1.1E-04	(µg/m3)-1	1.1E-11	2.7E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	7.4E-11	mg/m3	1.1E-03	(µg/m3)-1	8.1E-11	2.1E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	8.6E-11	mg/m3	1.1E-04	(µg/m3)-1	9.5E-12	2.4E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	5.8E-11	mg/m3	1.1E-04	(µg/m3)-1	6.4E-12	1.6E-10	mg/m3	NA	---	NA
				Carbazole	4.07E-01	mg/kg	2.2E-11	mg/m3	NA	---	NA	6.0E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	1.4E-11	mg/m3	1.2E-03	(µg/m3)-1	1.6E-11	3.8E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	5.1E-11	mg/m3	1.1E-04	(µg/m3)-1	5.6E-12	1.4E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	5.5E-07	mg/m3	NA	---	NA	1.5E-06	mg/m3	5.0E-03	mg/m3	0.00031
				Arsenic	4.41E+00	mg/kg	2.3E-10	mg/m3	4.3E-03	(µg/m3)-1	1.0E-09	6.5E-10	mg/m3	1.5E-05	mg/m3	0.000044
				Chromium Total	2.03E+01	mg/kg	1.1E-09	mg/m3	8.4E-02	(µg/m3)-1	9.0E-08	3.0E-09	mg/m3	1.0E-04	mg/m3	0.000030
				Cobalt	6.94E+00	mg/kg	3.7E-10	mg/m3	9.0E-03	(µg/m3)-1	3.3E-09	1.0E-09	mg/m3	6.0E-06	mg/m3	0.00017
				Iron	1.55E+04	mg/kg	8.2E-07	mg/m3	NA	---	NA	2.3E-06	mg/m3	NA	---	NA
				Manganese	3.15E+02	mg/kg	1.7E-08	mg/m3	NA	---	NA	4.7E-08	mg/m3	5.0E-05	mg/m3	0.00093
				Mercury	1.46E+00	mg/kg	7.7E-11	mg/m3	NA	---	NA	2.2E-10	mg/m3	3.0E-04	mg/m3	0.00000072
				Thallium	1.30E+00	mg/kg	6.9E-11	mg/m3	NA	---	NA	1.9E-10	mg/m3	NA	---	NA
				Vanadium	3.94E+01	mg/kg	2.1E-09	mg/m3	1.5E-02	(µg/m3)-1	3.1E-08	5.8E-09	mg/m3	3.9E-06	mg/m3	0.0015
			Inhalation Total								1.3E-07					0.0030
	Surface Soil Total										1.5E-05					0.092
Soil Total											1.5E-05					0.092
										Total of Receptor Risks Across All Media	1.5E-05				Total of Receptor Hazards Across All Media	0.092

TABLE A-7.2e3-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	3.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	4.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	1.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.013
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	6.8E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0017
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	6.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.023
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	6.8E-05	mg/kg-day	3.0E-03	mg/kg-day	0.023
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	9.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.030
				Iron	1.43E+04	mg/kg	---	---	---	---	---	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.028
				Lead	4.66E+02	mg/kg	---	---	---	---	---	6.4E-04	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0058
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0068
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	4.7E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0094
			Ingestion Total								---					0.14
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	7.7E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	9.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	6.3E-07	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	5.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	8.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0027
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2e3-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0027
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	9.7E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	7.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	8.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	5.1E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	6.6E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	3.5E-10	mg/m3	NA	---	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	3.5E-09	mg/m3	1.5E-05	mg/m3	0.00023
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	3.4E-08	mg/m3	1.0E-04	mg/m3	0.00034
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	4.5E-09	mg/m3	6.0E-06	mg/m3	0.00076
				Iron	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	3.2E-07	mg/m3	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0041
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	3.0E-04	mg/m3	0.0000018
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	3.9E-06	mg/m3	0.0061
			Inhalation Total								---					0.013
	Aggregate Soil Total										---					0.16
Soil Total											---					0.16
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.16

TABLE A-7.2e3-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	2.9E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	1.8E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	1.6E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	1.1E-05	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	3.8E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	9.4E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	1.2E-01	mg/kg-day	1.0E+00	mg/kg-day	0.12
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	6.4E-06	mg/kg-day	4.0E-04	mg/kg-day	0.016
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	6.4E-05	mg/kg-day	3.0E-04	mg/kg-day	0.21
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	6.3E-04	mg/kg-day	3.0E-03	mg/kg-day	0.21
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	8.4E-05	mg/kg-day	3.0E-04	mg/kg-day	0.28
				Iron	1.43E+04	mg/kg	---	---	---	---	---	1.8E-01	mg/kg-day	7.0E-01	mg/kg-day	0.26
				Lead	4.66E+02	mg/kg	---	---	---	---	---	6.0E-03	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	3.8E-03	mg/kg-day	7.0E-02	mg/kg-day	0.054
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	1.6E-04	mg/kg-day	0.063
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	4.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.088
			Ingestion Total								---					1.3
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	8.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	6.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	5.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	6.0E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	4.1E-06	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	9.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	3.4E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	5.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.018
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2e3-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.018
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	9.7E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	7.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	8.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	5.1E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	6.6E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	3.5E-10	mg/m3	NA	---	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	3.5E-09	mg/m3	1.5E-05	mg/m3	0.00023
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	3.4E-08	mg/m3	1.0E-04	mg/m3	0.00034
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	4.5E-09	mg/m3	6.0E-06	mg/m3	0.00076
				Iron	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	3.2E-07	mg/m3	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0041
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	3.0E-04	mg/m3	0.0000018
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	3.9E-06	mg/m3	0.0061
			Inhalation Total								---					0.013
	Aggregate Soil Total										---					1.3
Soil Total											---					1.3
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.3

TABLE A-7.2e3-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	3.6E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	2.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.9E-06	---	---	---	---	---
				Benzo(a)pyrene	1.09E+00	mg/kg	1.7E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.3E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.28E+00	mg/kg	2.0E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.3E-06	---	---	---	---	---
				Benzo(k)fluoranthene	8.84E-01	mg/kg	1.4E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.3E-07	---	---	---	---	---
				Carbazole	2.94E-01	mg/kg	4.6E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.7E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-06	---	---	---	---	---
				Metals												
				Aluminum	9.55E+03	mg/kg	1.5E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	5.00E-01	mg/kg	7.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	5.03E+00	mg/kg	7.9E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-05	---	---	---	---	---
				Chromium Total	4.94E+01	mg/kg	7.7E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.7E-04	---	---	---	---	---
				Cobalt	6.59E+00	mg/kg	1.0E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.43E+04	mg/kg	2.2E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.66E+02	mg/kg	7.3E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.94E+02	mg/kg	4.6E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	7.90E-01	mg/kg	1.2E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.45E+01	mg/kg	5.4E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								2.6E-04					---
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	9.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-06	---	---	---	---	---
				Benzo(a)pyrene	1.09E+00	mg/kg	7.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.28E+00	mg/kg	8.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-06	---	---	---	---	---
				Benzo(k)fluoranthene	8.84E-01	mg/kg	5.7E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.7E-07	---	---	---	---	---
				Carbazole	2.94E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	4.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-06	---	---	---	---	---
				Metals												
				Aluminum	9.55E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	5.00E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	5.03E+00	mg/kg	7.5E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				Chromium Total	4.94E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.59E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.94E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.2e3-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.45E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								3.2E-05					---
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	6.8E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	4.2E-10	mg/m3	1.1E-04	(µg/m3)-1	1.2E-10	---	---	---	---	---
				Benzo(a)pyrene	1.09E+00	mg/kg	3.2E-10	mg/m3	1.1E-03	(µg/m3)-1	8.9E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.28E+00	mg/kg	3.8E-10	mg/m3	1.1E-04	(µg/m3)-1	1.0E-10	---	---	---	---	---
				Benzo(k)fluoranthene	8.84E-01	mg/kg	2.6E-10	mg/m3	1.1E-04	(µg/m3)-1	7.2E-11	---	---	---	---	---
				Carbazole	2.94E-01	mg/kg	8.7E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	5.9E-11	mg/m3	1.2E-03	(µg/m3)-1	1.8E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	2.2E-10	mg/m3	1.1E-04	(µg/m3)-1	6.0E-11	---	---	---	---	---
				Metals												
				Aluminum	9.55E+03	mg/kg	2.8E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Antimony	5.00E-01	mg/kg	1.5E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	5.03E+00	mg/kg	1.5E-09	mg/m3	4.3E-03	(µg/m3)-1	6.4E-09	---	---	---	---	---
				Chromium Total	4.94E+01	mg/kg	1.5E-08	mg/m3	8.4E-02	(µg/m3)-1	3.1E-06	---	---	---	---	---
				Cobalt	6.59E+00	mg/kg	1.9E-09	mg/m3	9.0E-03	(µg/m3)-1	1.8E-08	---	---	---	---	---
				Iron	1.43E+04	mg/kg	4.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	4.66E+02	mg/kg	1.4E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.94E+02	mg/kg	8.7E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	7.90E-01	mg/kg	2.3E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.8E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	3.45E+01	mg/kg	1.0E-08	mg/m3	1.5E-02	(µg/m3)-1	1.5E-07	---	---	---	---	---
			Inhalation Total								3.3E-06					---
	Aggregate Soil Total										2.9E-04					---
Soil Total											2.9E-04					---
										Total of Receptor Risks Across All Media	2.9E-04	Total of Receptor Hazards Across All Media				---

TABLE A-7.2e3-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	5.5E-09	mg/kg-day	NA	---	NA	3.9E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-08	2.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	2.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.9E-07	1.8E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-08	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.5E-09	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	7.1E-09	mg/kg-day	NA	---	NA	4.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	4.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.5E-08	3.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	1.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-08	1.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	2.3E-04	mg/kg-day	NA	---	NA	1.6E-02	mg/kg-day	1.0E+00	mg/kg-day	0.016
				Antimony	5.00E-01	mg/kg	1.2E-08	mg/kg-day	NA	---	NA	8.4E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0021
				Arsenic	5.03E+00	mg/kg	1.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.8E-07	8.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.028
				Chromium Total	4.94E+01	mg/kg	1.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	5.9E-07	8.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.028
				Cobalt	6.59E+00	mg/kg	1.6E-07	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.037
				Iron	1.43E+04	mg/kg	3.4E-04	mg/kg-day	NA	---	NA	2.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.034
				Lead	4.66E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	7.8E-04	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	7.0E-06	mg/kg-day	NA	---	NA	4.9E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0070
				Mercury	7.90E-01	mg/kg	1.9E-08	mg/kg-day	NA	---	NA	1.3E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0083
				Thallium	1.30E+00	mg/kg	3.1E-08	mg/kg-day	NA	---	NA	2.2E-06	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	8.3E-07	mg/kg-day	NA	---	NA	5.8E-05	mg/kg-day	5.0E-03	mg/kg-day	0.012
			Ingestion Total								1.1E-06					0.17
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.6E-09	9.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.4E-08	7.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.7E-09	8.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	8.3E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.0E-10	5.8E-07	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	2.8E-09	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-08	1.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	6.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.0E-09	4.8E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	5.00E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	5.03E+00	mg/kg	1.1E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-08	7.6E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0025
				Chromium Total	4.94E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.59E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2e3-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.3E-07					0.0025
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	2.8E-10	mg/m3	NA	---	NA	2.0E-08	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	1.7E-09	mg/m3	1.1E-04	(µg/m3)-1	1.9E-10	1.2E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	1.3E-09	mg/m3	1.1E-03	(µg/m3)-1	1.5E-09	9.3E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	1.6E-09	mg/m3	1.1E-04	(µg/m3)-1	1.7E-10	1.1E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	1.1E-09	mg/m3	1.1E-04	(µg/m3)-1	1.2E-10	7.6E-08	mg/m3	NA	---	NA
				Carbazole	2.94E-01	mg/kg	3.6E-10	mg/m3	NA	---	NA	2.5E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	2.4E-10	mg/m3	1.2E-03	(µg/m3)-1	2.9E-10	1.7E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	9.0E-10	mg/m3	1.1E-04	(µg/m3)-1	9.9E-11	6.3E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	1.2E-05	mg/m3	NA	---	NA	8.2E-04	mg/m3	5.0E-03	mg/m3	0.16
				Antimony	5.00E-01	mg/kg	6.1E-10	mg/m3	NA	---	NA	4.3E-08	mg/m3	NA	---	NA
				Arsenic	5.03E+00	mg/kg	6.1E-09	mg/m3	4.3E-03	(µg/m3)-1	2.6E-08	4.3E-07	mg/m3	1.5E-05	mg/m3	0.029
				Chromium Total	4.94E+01	mg/kg	6.0E-08	mg/m3	8.4E-02	(µg/m3)-1	5.1E-06	4.2E-06	mg/m3	1.0E-04	mg/m3	0.042
				Cobalt	6.59E+00	mg/kg	8.0E-09	mg/m3	9.0E-03	(µg/m3)-1	7.2E-08	5.6E-07	mg/m3	6.0E-06	mg/m3	0.094
				Iron	1.43E+04	mg/kg	1.7E-05	mg/m3	NA	---	NA	1.2E-03	mg/m3	NA	---	NA
				Lead	4.66E+02	mg/kg	5.7E-07	mg/m3	NA	---	NA	4.0E-05	mg/m3	NA	---	NA
				Manganese	2.94E+02	mg/kg	3.6E-07	mg/m3	NA	---	NA	2.5E-05	mg/m3	5.0E-05	mg/m3	0.50
				Mercury	7.90E-01	mg/kg	9.6E-10	mg/m3	NA	---	NA	6.8E-08	mg/m3	3.0E-04	mg/m3	0.00023
				Thallium	1.30E+00	mg/kg	1.6E-09	mg/m3	NA	---	NA	1.1E-07	mg/m3	NA	---	NA
				Vanadium	3.45E+01	mg/kg	4.2E-08	mg/m3	1.5E-02	(µg/m3)-1	6.3E-07	3.0E-06	mg/m3	5.6E-05	mg/m3	0.053
			Inhalation Total								5.8E-06					0.88
	Aggregate Soil Total										7.0E-06					1.1
Soil Total											7.0E-06					1.1
										Total of Receptor Risks Across All Media	7.0E-06				Total of Receptor Hazards Across All Media	1.1

TABLE A-7.1e3-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	9.6E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.6E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	7.1E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0071
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	3.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.010
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0046
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.016
				Iron	1.55E+04	mg/kg	---	---	---	---	---	1.1E-02	mg/kg-day	7.0E-01	mg/kg-day	0.015
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	2.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0031
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0062
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	2.7E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0054
			Ingestion Total								---					0.068
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.7E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	4.1E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	2.6E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	9.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00034
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.55E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA

TABLE A-7.1e3-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Dermal Total								---					0.00034
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	9.6E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.7E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	7.2E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	3.0E-09	mg/m3	1.5E-05	mg/m3	0.00020
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	1.4E-08	mg/m3	1.0E-04	mg/m3	0.00014
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	4.8E-09	mg/m3	6.0E-06	mg/m3	0.00080
				Iron	1.55E+04	mg/kg	---	---	---	---	---	1.1E-05	mg/m3	NA	---	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	1.0E-09	mg/m3	3.0E-04	mg/m3	0.0000033
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	2.7E-08	mg/m3	3.9E-06	mg/m3	0.0069
			Inhalation Total								---					0.014
	Surface Soil Total										---					0.082
Soil Total											---					0.082
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.082

TABLE A-7.1e3-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	8.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.1E-06	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.6E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	6.6E-02	mg/kg-day	1.0E+00	mg/kg-day	0.066
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	2.8E-05	mg/kg-day	3.0E-04	mg/kg-day	0.094
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	1.3E-04	mg/kg-day	3.0E-03	mg/kg-day	0.043
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	4.4E-05	mg/kg-day	3.0E-04	mg/kg-day	0.15
				Iron	1.55E+04	mg/kg	---	---	---	---	---	9.9E-02	mg/kg-day	7.0E-01	mg/kg-day	0.14
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	2.0E-03	mg/kg-day	7.0E-02	mg/kg-day	0.029
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	9.3E-06	mg/kg-day	1.6E-04	mg/kg-day	0.058
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.3E-06	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	2.5E-04	mg/kg-day	5.0E-03	mg/kg-day	0.050
			Ingestion Total								---					0.63
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	3.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	9.0E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	9.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0032
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.55E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA

TABLE A-7.1e3-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Dermal Total								---					0.0032
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	---	---	---	---	---	9.6E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Carbazole	4.07E-01	mg/kg	---	---	---	---	---	2.8E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	---	---	---	---	---	6.7E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	---	---	---	---	---	7.2E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	4.41E+00	mg/kg	---	---	---	---	---	3.0E-09	mg/m3	1.5E-05	mg/m3	0.00020
				Chromium Total	2.03E+01	mg/kg	---	---	---	---	---	1.4E-08	mg/m3	1.0E-04	mg/m3	0.00014
				Cobalt	6.94E+00	mg/kg	---	---	---	---	---	4.8E-09	mg/m3	6.0E-06	mg/m3	0.00080
				Iron	1.55E+04	mg/kg	---	---	---	---	---	1.1E-05	mg/m3	NA	---	NA
				Manganese	3.15E+02	mg/kg	---	---	---	---	---	2.2E-07	mg/m3	5.0E-05	mg/m3	0.0044
				Mercury	1.46E+00	mg/kg	---	---	---	---	---	1.0E-09	mg/m3	3.0E-04	mg/m3	0.0000033
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.94E+01	mg/kg	---	---	---	---	---	2.7E-08	mg/m3	3.9E-06	mg/m3	0.0069
			Inhalation Total								---					0.014
	Surface Soil Total										---					0.65
Soil Total											---					0.65
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.65

TABLE A-7.1e3-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	5.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(a)pyrene	1.40E+00	mg/kg	3.5E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.64E+00	mg/kg	4.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.10E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.6E-07	---	---	---	---	---
				Carbazole	4.07E-01	mg/kg	1.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	6.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.8E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-06	---	---	---	---	---
				Metals												
				Aluminum	1.04E+04	mg/kg	2.6E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.41E+00	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.7E-06	---	---	---	---	---
				Chromium Total	2.03E+01	mg/kg	5.1E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.1E-05	---	---	---	---	---
				Cobalt	6.94E+00	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.55E+04	mg/kg	3.9E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.15E+02	mg/kg	7.9E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.46E+00	mg/kg	3.7E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.94E+01	mg/kg	9.9E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								5.4E-05					---
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	6.5E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	6.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-07	---	---	---	---	---
				Benzo(a)pyrene	1.40E+00	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.0E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.64E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-07	---	---	---	---	---
				Benzo(k)fluoranthene	1.10E+00	mg/kg	4.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.4E-08	---	---	---	---	---
				Carbazole	4.07E-01	mg/kg	1.5E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	9.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.6E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	---	---	---	---	---
				Metals												
				Aluminum	1.04E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.41E+00	mg/kg	3.7E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.6E-08	---	---	---	---	---
				Chromium Total	2.03E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.94E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.55E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.15E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.46E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.94E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.1e3-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Dermal Total								4.6E-06					---
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	2.0E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	8.1E-11	---	---	---	---	---
				Benzo(a)pyrene	1.40E+00	mg/kg	1.2E-10	mg/m3	1.1E-03	(µg/m3)-1	6.2E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.64E+00	mg/kg	1.5E-10	mg/m3	1.1E-04	(µg/m3)-1	7.2E-11	---	---	---	---	---
				Benzo(k)fluoranthene	1.10E+00	mg/kg	9.8E-11	mg/m3	1.1E-04	(µg/m3)-1	4.9E-11	---	---	---	---	---
				Carbazole	4.07E-01	mg/kg	3.6E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	2.3E-11	mg/m3	1.2E-03	(µg/m3)-1	1.2E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	8.6E-11	mg/m3	1.1E-04	(µg/m3)-1	4.3E-11	---	---	---	---	---
				Metals												
				Aluminum	1.04E+04	mg/kg	9.2E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.41E+00	mg/kg	3.9E-10	mg/m3	4.3E-03	(µg/m3)-1	1.7E-09	---	---	---	---	---
				Chromium Total	2.03E+01	mg/kg	1.8E-09	mg/m3	8.4E-02	(µg/m3)-1	6.9E-07	---	---	---	---	---
				Cobalt	6.94E+00	mg/kg	6.2E-10	mg/m3	9.0E-03	(µg/m3)-1	5.5E-09	---	---	---	---	---
				Iron	1.55E+04	mg/kg	1.4E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	3.15E+02	mg/kg	2.8E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	1.46E+00	mg/kg	1.3E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	3.94E+01	mg/kg	3.5E-09	mg/m3	1.5E-02	(µg/m3)-1	5.2E-08	---	---	---	---	---
			Inhalation Total								7.5E-07					---
	Surface Soil Total										5.9E-05					---
Soil Total											5.9E-05					---
										Total of Receptor Risks Across All Media	5.9E-05				Total of Receptor Hazards Across All Media	---

TABLE A-7.1e3-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	2.6E-09	mg/kg-day	NA	---	NA	2.0E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-08	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	1.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-07	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	1.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-08	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	9.1E-10	9.7E-08	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	4.6E-09	mg/kg-day	NA	---	NA	3.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	2.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-08	2.3E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.0E-09	8.5E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	9.2E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00092
				Arsenic	4.41E+00	mg/kg	5.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.5E-08	3.9E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0013
				Chromium Total	2.03E+01	mg/kg	2.3E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.2E-07	1.8E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00060
				Cobalt	6.94E+00	mg/kg	7.9E-08	mg/kg-day	NA	---	NA	6.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0020
				Iron	1.55E+04	mg/kg	1.8E-04	mg/kg-day	NA	---	NA	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0019
				Manganese	3.15E+02	mg/kg	3.6E-06	mg/kg-day	NA	---	NA	2.8E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00040
				Mercury	1.46E+00	mg/kg	1.6E-08	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	1.6E-04	mg/kg-day	0.00080
				Thallium	1.30E+00	mg/kg	1.5E-08	mg/kg-day	NA	---	NA	1.1E-07	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	4.5E-07	mg/kg-day	NA	---	NA	3.5E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00069
			Ingestion Total								3.6E-07					0.0087
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	3.4E-10	mg/kg-day	NA	---	NA	2.7E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	3.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-09	2.8E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	2.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-08	2.1E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	3.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-09	2.5E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	2.1E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.6E-10	1.7E-08	mg/kg-day	NA	---	NA
				Carbazole	4.07E-01	mg/kg	7.9E-10	mg/kg-day	NA	---	NA	6.2E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	5.0E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.6E-09	3.9E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	1.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-09	1.5E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	4.41E+00	mg/kg	2.0E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.0E-09	1.5E-08	mg/kg-day	3.0E-04	mg/kg-day	0.000051
				Chromium Total	2.03E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.94E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.55E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.15E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.46E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.94E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								3.3E-08					0.000051

TABLE A-7.1e3-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area E3	Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	8.7E-13	mg/m3	NA	---	NA	6.8E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.84E+00	mg/kg	7.0E-12	mg/m3	1.1E-04	(µg/m3)-1	7.7E-13	5.4E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.40E+00	mg/kg	5.3E-12	mg/m3	1.1E-03	(µg/m3)-1	5.8E-12	4.1E-11	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.64E+00	mg/kg	6.2E-12	mg/m3	1.1E-04	(µg/m3)-1	6.8E-13	4.8E-11	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.10E+00	mg/kg	4.2E-12	mg/m3	1.1E-04	(µg/m3)-1	4.6E-13	3.3E-11	mg/m3	NA	---	NA
				Carbazole	4.07E-01	mg/kg	1.5E-12	mg/m3	NA	---	NA	1.2E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.57E-01	mg/kg	9.8E-13	mg/m3	1.2E-03	(µg/m3)-1	1.2E-12	7.6E-12	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.70E-01	mg/kg	3.7E-12	mg/m3	1.1E-04	(µg/m3)-1	4.1E-13	2.9E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.04E+04	mg/kg	4.0E-08	mg/m3	NA	---	NA	3.1E-07	mg/m3	5.0E-03	mg/m3	0.000062
				Arsenic	4.41E+00	mg/kg	1.7E-11	mg/m3	4.3E-03	(µg/m3)-1	7.2E-11	1.3E-10	mg/m3	1.5E-05	mg/m3	0.0000087
				Chromium Total	2.03E+01	mg/kg	7.7E-11	mg/m3	8.4E-02	(µg/m3)-1	6.5E-09	6.0E-10	mg/m3	1.0E-04	mg/m3	0.0000060
				Cobalt	6.94E+00	mg/kg	2.6E-11	mg/m3	9.0E-03	(µg/m3)-1	2.4E-10	2.1E-10	mg/m3	6.0E-06	mg/m3	0.000034
				Iron	1.55E+04	mg/kg	5.9E-08	mg/m3	NA	---	NA	4.6E-07	mg/m3	NA	---	NA
				Manganese	3.15E+02	mg/kg	1.2E-09	mg/m3	NA	---	NA	9.3E-09	mg/m3	5.0E-05	mg/m3	0.00019
				Mercury	1.46E+00	mg/kg	5.5E-12	mg/m3	NA	---	NA	4.3E-11	mg/m3	3.0E-04	mg/m3	0.00000014
				Thallium	1.30E+00	mg/kg	4.9E-12	mg/m3	NA	---	NA	3.8E-11	mg/m3	NA	---	NA
				Vanadium	3.94E+01	mg/kg	1.5E-10	mg/m3	1.5E-02	(µg/m3)-1	2.2E-09	1.2E-09	mg/m3	3.9E-06	mg/m3	0.00030
			Inhalation Total								9.1E-09					0.00059
	Surface Soil Total										4.1E-07					0.0093
Soil Total											4.1E-07					0.0093
										Total of Receptor Risks Across All Media	4.1E-07				Total of Receptor Hazards Across All Media	0.0093

TABLE A-7.2e3-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	9.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	7.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	8.8E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	6.1E-07	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	5.0E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	6.5E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0065
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	3.4E-07	mg/kg-day	4.0E-04	mg/kg-day	0.00086
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	3.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.011
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	3.4E-05	mg/kg-day	3.0E-03	mg/kg-day	0.011
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	4.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Iron	1.43E+04	mg/kg	---	---	---	---	---	9.8E-03	mg/kg-day	7.0E-01	mg/kg-day	0.014
				Lead	4.66E+02	mg/kg	---	---	---	---	---	3.2E-04	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0029
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	5.4E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0034
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	2.4E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0047
			Ingestion Total								---					0.070
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	9.0E-08	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	3.0E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	2.0E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	7.5E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00039
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2e3-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.00039
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	9.7E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	7.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	8.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	5.1E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	6.6E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	3.5E-10	mg/m3	NA	---	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	3.5E-09	mg/m3	1.5E-05	mg/m3	0.00023
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	3.4E-08	mg/m3	1.0E-04	mg/m3	0.00034
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	4.5E-09	mg/m3	6.0E-06	mg/m3	0.00076
				Iron	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	3.2E-07	mg/m3	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0041
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	3.0E-04	mg/m3	0.0000018
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	3.9E-06	mg/m3	0.0061
			Inhalation Total								---					0.013
	Aggregate Soil Total										---					0.083
Soil Total											---					0.083
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.083

TABLE A-7.2e3-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	9.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	6.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	8.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	5.7E-06	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	4.7E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	6.1E-02	mg/kg-day	1.0E+00	mg/kg-day	0.061
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	3.2E-06	mg/kg-day	4.0E-04	mg/kg-day	0.0080
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	3.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.11
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	3.2E-04	mg/kg-day	3.0E-03	mg/kg-day	0.11
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	4.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.14
				Iron	1.43E+04	mg/kg	---	---	---	---	---	9.1E-02	mg/kg-day	7.0E-01	mg/kg-day	0.13
				Lead	4.66E+02	mg/kg	---	---	---	---	---	3.0E-03	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	1.9E-03	mg/kg-day	7.0E-02	mg/kg-day	0.027
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	5.1E-06	mg/kg-day	1.6E-04	mg/kg-day	0.032
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.3E-06	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	2.2E-04	mg/kg-day	5.0E-03	mg/kg-day	0.044
			Ingestion Total								---					0.65
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	8.2E-07	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	6.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0036
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2e3-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								---					0.0036
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	---	---	---	---	---	1.6E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	---	---	---	---	---	9.7E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	---	---	---	---	---	7.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	---	---	---	---	---	8.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Carbazole	2.94E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	---	---	---	---	---	1.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	---	---	---	---	---	5.1E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	---	---	---	---	---	6.6E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	5.00E-01	mg/kg	---	---	---	---	---	3.5E-10	mg/m3	NA	---	NA
				Arsenic	5.03E+00	mg/kg	---	---	---	---	---	3.5E-09	mg/m3	1.5E-05	mg/m3	0.00023
				Chromium Total	4.94E+01	mg/kg	---	---	---	---	---	3.4E-08	mg/m3	1.0E-04	mg/m3	0.00034
				Cobalt	6.59E+00	mg/kg	---	---	---	---	---	4.5E-09	mg/m3	6.0E-06	mg/m3	0.00076
				Iron	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
				Lead	4.66E+02	mg/kg	---	---	---	---	---	3.2E-07	mg/m3	NA	---	NA
				Manganese	2.94E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0041
				Mercury	7.90E-01	mg/kg	---	---	---	---	---	5.5E-10	mg/m3	3.0E-04	mg/m3	0.0000018
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	3.45E+01	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	3.9E-06	mg/m3	0.0061
			Inhalation Total								---					0.013
	Aggregate Soil Total										---					0.67
Soil Total											---					0.67
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.67

TABLE A-7.2e3-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	5.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-06	---	---	---	---	---
				Benzo(a)pyrene	1.09E+00	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.6E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.28E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-06	---	---	---	---	---
				Benzo(k)fluoranthene	8.84E-01	mg/kg	2.2E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.3E-07	---	---	---	---	---
				Carbazole	2.94E-01	mg/kg	7.4E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	5.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.9E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				Metals												
				Aluminum	9.55E+03	mg/kg	2.4E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	5.00E-01	mg/kg	1.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	5.03E+00	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.9E-06	---	---	---	---	---
				Chromium Total	4.94E+01	mg/kg	1.2E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	5.0E-05	---	---	---	---	---
				Cobalt	6.59E+00	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.43E+04	mg/kg	3.6E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.66E+02	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.94E+02	mg/kg	7.4E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	7.90E-01	mg/kg	2.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.45E+01	mg/kg	8.7E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								7.6E-05					---
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	6.5E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.0E-07	---	---	---	---	---
				Benzo(a)pyrene	1.09E+00	mg/kg	4.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.28E+00	mg/kg	4.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-07	---	---	---	---	---
				Benzo(k)fluoranthene	8.84E-01	mg/kg	3.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.9E-08	---	---	---	---	---
				Carbazole	2.94E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	7.3E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.3E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-07	---	---	---	---	---
				Metals												
				Aluminum	9.55E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	5.00E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	5.03E+00	mg/kg	4.3E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.4E-08	---	---	---	---	---
				Chromium Total	4.94E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.59E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.94E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.2e3-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	3.45E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								3.6E-06					---
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	2.0E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	1.2E-10	mg/m3	1.1E-04	(µg/m3)-1	6.2E-11	---	---	---	---	---
				Benzo(a)pyrene	1.09E+00	mg/kg	9.6E-11	mg/m3	1.1E-03	(µg/m3)-1	4.8E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.28E+00	mg/kg	1.1E-10	mg/m3	1.1E-04	(µg/m3)-1	5.7E-11	---	---	---	---	---
				Benzo(k)fluoranthene	8.84E-01	mg/kg	7.8E-11	mg/m3	1.1E-04	(µg/m3)-1	3.9E-11	---	---	---	---	---
				Carbazole	2.94E-01	mg/kg	2.6E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	1.8E-11	mg/m3	1.2E-03	(µg/m3)-1	9.5E-11	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	6.5E-11	mg/m3	1.1E-04	(µg/m3)-1	3.3E-11	---	---	---	---	---
				Metals												
				Aluminum	9.55E+03	mg/kg	8.5E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Antimony	5.00E-01	mg/kg	4.4E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	5.03E+00	mg/kg	4.5E-10	mg/m3	4.3E-03	(µg/m3)-1	1.9E-09	---	---	---	---	---
				Chromium Total	4.94E+01	mg/kg	4.4E-09	mg/m3	8.4E-02	(µg/m3)-1	1.7E-06	---	---	---	---	---
				Cobalt	6.59E+00	mg/kg	5.8E-10	mg/m3	9.0E-03	(µg/m3)-1	5.3E-09	---	---	---	---	---
				Iron	1.43E+04	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	4.66E+02	mg/kg	4.1E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.94E+02	mg/kg	2.6E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	7.90E-01	mg/kg	7.0E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	3.45E+01	mg/kg	3.1E-09	mg/m3	1.5E-02	(µg/m3)-1	4.6E-08	---	---	---	---	---
			Inhalation Total								1.7E-06					---
	Aggregate Soil Total										8.2E-05					---
Soil Total											8.2E-05					---
										Total of Receptor Risks Across All Media	8.2E-05				Total of Receptor Hazards Across All Media	---

TABLE A-7.2e3-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Ingestion	Di-n-octyl phthalate	2.30E-01	mg/kg	3.3E-10	mg/kg-day	NA	---	NA	2.3E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	2.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-09	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	1.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-08	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	1.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-09	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	1.3E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	9.4E-11	9.0E-08	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	4.3E-10	mg/kg-day	NA	---	NA	3.0E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	2.9E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-09	2.0E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.8E-10	7.5E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	9.7E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00097
				Antimony	5.00E-01	mg/kg	7.3E-10	mg/kg-day	NA	---	NA	5.1E-08	mg/kg-day	4.0E-04	mg/kg-day	0.00013
				Arsenic	5.03E+00	mg/kg	7.3E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-08	5.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0017
				Chromium Total	4.94E+01	mg/kg	7.2E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.6E-08	5.0E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0017
				Cobalt	6.59E+00	mg/kg	9.6E-09	mg/kg-day	NA	---	NA	6.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0022
				Iron	1.43E+04	mg/kg	2.1E-05	mg/kg-day	NA	---	NA	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0021
				Lead	4.66E+02	mg/kg	6.8E-07	mg/kg-day	NA	---	NA	4.7E-05	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	4.3E-07	mg/kg-day	NA	---	NA	3.0E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00043
				Mercury	7.90E-01	mg/kg	1.1E-09	mg/kg-day	NA	---	NA	8.0E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00050
				Thallium	1.30E+00	mg/kg	1.9E-09	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	5.0E-08	mg/kg-day	NA	---	NA	3.5E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00070
			Ingestion Total								6.4E-08					0.010
			Dermal	Di-n-octyl phthalate	2.30E-01	mg/kg	1.1E-10	mg/kg-day	NA	---	NA	7.7E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	8.8E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.4E-10	6.1E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	6.8E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.9E-09	4.7E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	8.0E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.8E-10	5.6E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	5.5E-10	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.0E-11	3.9E-08	mg/kg-day	NA	---	NA
				Carbazole	2.94E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	1.2E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.0E-10	8.6E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	4.6E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-10	3.2E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	5.00E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	5.03E+00	mg/kg	7.2E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-09	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00017
				Chromium Total	4.94E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.59E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.66E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.94E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2e3-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Dermal	Mercury	7.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.45E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								8.5E-09					0.00017
			Inhalation	Di-n-octyl phthalate	2.30E-01	mg/kg	5.6E-11	mg/m3	NA	---	NA	3.9E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.41E+00	mg/kg	3.4E-10	mg/m3	1.1E-04	(µg/m3)-1	3.8E-11	2.4E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.09E+00	mg/kg	2.6E-10	mg/m3	1.1E-03	(µg/m3)-1	2.9E-10	1.9E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.28E+00	mg/kg	3.1E-10	mg/m3	1.1E-04	(µg/m3)-1	3.4E-11	2.2E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	8.84E-01	mg/kg	2.2E-10	mg/m3	1.1E-04	(µg/m3)-1	2.4E-11	1.5E-08	mg/m3	NA	---	NA
				Carbazole	2.94E-01	mg/kg	7.2E-11	mg/m3	NA	---	NA	5.0E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.98E-01	mg/kg	4.8E-11	mg/m3	1.2E-03	(µg/m3)-1	5.8E-11	3.4E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.37E-01	mg/kg	1.8E-10	mg/m3	1.1E-04	(µg/m3)-1	2.0E-11	1.3E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.55E+03	mg/kg	2.3E-06	mg/m3	NA	---	NA	1.6E-04	mg/m3	5.0E-03	mg/m3	0.033
				Antimony	5.00E-01	mg/kg	1.2E-10	mg/m3	NA	---	NA	8.5E-09	mg/m3	NA	---	NA
				Arsenic	5.03E+00	mg/kg	1.2E-09	mg/m3	4.3E-03	(µg/m3)-1	5.3E-09	8.6E-08	mg/m3	1.5E-05	mg/m3	0.0057
				Chromium Total	4.94E+01	mg/kg	1.2E-08	mg/m3	8.4E-02	(µg/m3)-1	1.0E-06	8.4E-07	mg/m3	1.0E-04	mg/m3	0.0084
				Cobalt	6.59E+00	mg/kg	1.6E-09	mg/m3	9.0E-03	(µg/m3)-1	1.4E-08	1.1E-07	mg/m3	6.0E-06	mg/m3	0.019
				Iron	1.43E+04	mg/kg	3.5E-06	mg/m3	NA	---	NA	2.4E-04	mg/m3	NA	---	NA
				Lead	4.66E+02	mg/kg	1.1E-07	mg/m3	NA	---	NA	8.0E-06	mg/m3	NA	---	NA
				Manganese	2.94E+02	mg/kg	7.2E-08	mg/m3	NA	---	NA	5.0E-06	mg/m3	5.0E-05	mg/m3	0.10
				Mercury	7.90E-01	mg/kg	1.9E-10	mg/m3	NA	---	NA	1.4E-08	mg/m3	3.0E-04	mg/m3	0.000045
				Thallium	1.30E+00	mg/kg	3.2E-10	mg/m3	NA	---	NA	2.2E-08	mg/m3	NA	---	NA
				Vanadium	3.45E+01	mg/kg	8.4E-09	mg/m3	1.5E-02	(µg/m3)-1	1.3E-07	5.9E-07	mg/m3	5.6E-05	mg/m3	0.011
			Inhalation Total								1.2E-06					0.18
	Aggregate Soil Total										1.2E-06					0.19
Soil Total											1.2E-06					0.19
										Total of Receptor Risks Across All Media	1.2E-06				Total of Receptor Hazards Across All Media	0.19

TABLE A-7.1f-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Ingestion	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00029
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	5.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	2.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	2.9E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	2.8E-06	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	3.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	4.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	1.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.014
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.035
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	8.6E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0086
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	2.5E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0084
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	8.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.029
				Iron	1.40E+04	mg/kg	---	---	---	---	---	1.9E-02	mg/kg-day	7.0E-01	mg/kg-day	0.027
				Lead	2.20E+02	mg/kg	---	---	---	---	---	3.0E-04	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	4.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0057
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	5.4E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0033
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	1.2E-04	mg/kg-day	5.0E-03	mg/kg-day	0.023
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	2.4E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0080
			Ingestion Total								---					0.16
			Dermal	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	5.7E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00011
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	7.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	5.5E-07	mg/kg-day	NA	---	NA
				Metals												

TABLE A-7.1f-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Dermal	Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0042
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	3.4E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0014
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.40E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.0056
			Inhalation	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	7.2E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	7.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.4E-09	mg/m3	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	5.3E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.9E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	5.2E-09	mg/m3	1.5E-05	mg/m3	0.00035
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	1.0E-05	mg/m3	0.00044
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	1.3E-08	mg/m3	1.0E-04	mg/m3	0.00013
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.40E+04	mg/kg	---	---	---	---	---	9.7E-06	mg/m3	NA	---	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0040
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	3.0E-04	mg/m3	0.00000090
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	5.9E-08	mg/m3	3.9E-06	mg/m3	0.015
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	1.2E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.022
	Surface Soil Total										---					0.19
Soil Total											---					0.19
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.19

TABLE A-7.1f-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Ingestion	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	5.0E-05	mg/kg-day	0.0027
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	4.9E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	2.4E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	2.7E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	2.6E-05	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	3.7E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	4.5E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	9.9E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	1.3E-01	mg/kg-day	1.0E+00	mg/kg-day	0.13
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	9.7E-05	mg/kg-day	3.0E-04	mg/kg-day	0.32
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	8.1E-05	mg/kg-day	1.0E-03	mg/kg-day	0.081
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	2.3E-04	mg/kg-day	3.0E-03	mg/kg-day	0.078
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	8.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.27
				Iron	1.40E+04	mg/kg	---	---	---	---	---	1.8E-01	mg/kg-day	7.0E-01	mg/kg-day	0.26
				Lead	2.20E+02	mg/kg	---	---	---	---	---	2.8E-03	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	3.7E-03	mg/kg-day	7.0E-02	mg/kg-day	0.053
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	5.0E-06	mg/kg-day	1.6E-04	mg/kg-day	0.031
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	1.1E-03	mg/kg-day	5.0E-03	mg/kg-day	0.22
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	2.2E-02	mg/kg-day	3.0E-01	mg/kg-day	0.075
			Ingestion Total								---					1.5
			Dermal	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	3.8E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00075
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	8.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	4.9E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	9.8E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	9.5E-06	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	3.6E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	8.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.027

TABLE A-7.1f-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Dermal	Cadmium	6.31E+00	mg/kg	---	---	---	---	---	2.3E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0090
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.40E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.037
			Inhalation	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	7.2E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	7.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.4E-09	mg/m3	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	5.3E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.9E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	5.2E-09	mg/m3	1.5E-05	mg/m3	0.00035
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	1.0E-05	mg/m3	0.00044
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	1.3E-08	mg/m3	1.0E-04	mg/m3	0.00013
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.40E+04	mg/kg	---	---	---	---	---	9.7E-06	mg/m3	NA	---	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0040
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	3.0E-04	mg/m3	0.00000090
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	5.9E-08	mg/m3	3.9E-06	mg/m3	0.015
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	1.2E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.022
	Surface Soil Total										---					1.6
Soil Total											---					1.6
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.6

TABLE A-7.1f-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Ingestion	Dieldrin	1.05E-02	mg/kg	1.6E-08	mg/kg-day	1.6E+01	(mg/kg-day)-1	2.6E-07	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	6.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.1E-06	---	---	---	---	---
				Benzo(a)pyrene	1.05E+00	mg/kg	1.6E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.1E-05	---	---	---	---	---
				Benzo(b)fluoranthene	2.11E+00	mg/kg	3.3E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-05	---	---	---	---	---
				Benzo(k)fluoranthene	2.04E+00	mg/kg	3.2E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.0E-06	---	---	---	---	---
				Carbazole	2.87E-01	mg/kg	4.5E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	5.5E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.7E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-06	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	1.6E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.60E+00	mg/kg	1.2E-05	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.8E-05	---	---	---	---	---
				Cadmium	6.31E+00	mg/kg	9.9E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.84E+01	mg/kg	2.9E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.2E-05	---	---	---	---	---
				Cobalt	6.33E+00	mg/kg	9.9E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.40E+04	mg/kg	2.2E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.20E+02	mg/kg	3.4E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.92E+02	mg/kg	4.6E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.91E-01	mg/kg	6.1E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	8.54E+01	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.76E+03	mg/kg	2.8E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.7E-04					---
			Dermal	Dieldrin	1.05E-02	mg/kg	5.2E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	8.3E-08	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-06	---	---	---	---	---
				Benzo(a)pyrene	1.05E+00	mg/kg	6.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-05	---	---	---	---	---
				Benzo(b)fluoranthene	2.11E+00	mg/kg	1.4E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-06	---	---	---	---	---
				Benzo(k)fluoranthene	2.04E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.8E-07	---	---	---	---	---
				Carbazole	2.87E-01	mg/kg	1.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	2.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.6E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-06	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.60E+00	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.7E-06	---	---	---	---	---
				Cadmium	6.31E+00	mg/kg	3.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.84E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---

TABLE A-7.1f-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Dermal	Cobalt	6.33E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.40E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.20E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.92E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.91E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	8.54E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.76E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								3.7E-05					---
			Inhalation	Dieldrin	1.05E-02	mg/kg	3.1E-12	mg/m3	4.6E-03	(µg/m3)-1	1.4E-11	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	5.5E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	---	---	---	---	---
				Benzo(a)pyrene	1.05E+00	mg/kg	3.1E-10	mg/m3	1.1E-03	(µg/m3)-1	8.6E-10	---	---	---	---	---
				Benzo(b)fluoranthene	2.11E+00	mg/kg	6.2E-10	mg/m3	1.1E-04	(µg/m3)-1	1.7E-10	---	---	---	---	---
				Benzo(k)fluoranthene	2.04E+00	mg/kg	6.0E-10	mg/m3	1.1E-04	(µg/m3)-1	1.7E-10	---	---	---	---	---
				Carbazole	2.87E-01	mg/kg	8.5E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	1.0E-10	mg/m3	1.2E-03	(µg/m3)-1	3.1E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	2.3E-10	mg/m3	1.1E-04	(µg/m3)-1	6.3E-11	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	3.0E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	7.60E+00	mg/kg	2.2E-09	mg/m3	4.3E-03	(µg/m3)-1	9.7E-09	---	---	---	---	---
				Cadmium	6.31E+00	mg/kg	1.9E-09	mg/m3	1.8E-03	(µg/m3)-1	3.4E-09	---	---	---	---	---
				Chromium Total	1.84E+01	mg/kg	5.4E-09	mg/m3	8.4E-02	(µg/m3)-1	1.1E-06	---	---	---	---	---
				Cobalt	6.33E+00	mg/kg	1.9E-09	mg/m3	9.0E-03	(µg/m3)-1	1.7E-08	---	---	---	---	---
				Iron	1.40E+04	mg/kg	4.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	2.20E+02	mg/kg	6.5E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.92E+02	mg/kg	8.6E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	3.91E-01	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.8E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	8.54E+01	mg/kg	2.5E-08	mg/m3	1.5E-02	(µg/m3)-1	3.8E-07	---	---	---	---	---
				Zinc	1.76E+03	mg/kg	5.2E-07	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								1.6E-06					---
	Surface Soil Total										2.1E-04					---
Soil Total											2.1E-04					---
										Total of Receptor Risks Across All Media	2.1E-04				Total of Receptor Hazards Across All Media	---

TABLE A-7.2f-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00021
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	5.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	3.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	4.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	9.8E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	1.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.013
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.033
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	8.6E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0086
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	1.5E-04	mg/kg-day	3.0E-03	mg/kg-day	0.049
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	8.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.029
				Iron	1.52E+04	mg/kg	---	---	---	---	---	2.1E-02	mg/kg-day	7.0E-01	mg/kg-day	0.030
				Lead	2.23E+02	mg/kg	---	---	---	---	---	3.1E-04	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	4.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0059
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0032
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	1.0E-04	mg/kg-day	5.0E-03	mg/kg-day	0.020
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	2.2E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0073
			Ingestion Total								---					0.20
			Dermal	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	4.2E-09	mg/kg-day	5.0E-05	mg/kg-day	0.000085
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	9.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	5.1E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0040
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	3.4E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0014
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA

TABLE A-7.2f-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.0054
			Inhalation	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	5.3E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.2E-09	mg/m3	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.9E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	6.4E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	5.0E-09	mg/m3	1.5E-05	mg/m3	0.00034
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	1.0E-05	mg/m3	0.00043
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	7.3E-08	mg/m3	1.0E-04	mg/m3	0.00073
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.52E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	2.1E-07	mg/m3	5.0E-05	mg/m3	0.0042
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	3.0E-04	mg/m3	0.00000085
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	5.2E-08	mg/m3	3.9E-06	mg/m3	0.013
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	1.1E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.021
	Aggregate Soil Total										---					0.23
Soil Total											---					0.23
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.23

TABLE A-7.2f-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	9.9E-08	mg/kg-day	5.0E-05	mg/kg-day	0.0020
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	4.9E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	2.1E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	2.3E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	2.2E-05	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	3.5E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	4.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	9.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	1.2E-01	mg/kg-day	1.0E+00	mg/kg-day	0.12
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	9.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.31
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	8.0E-05	mg/kg-day	1.0E-03	mg/kg-day	0.080
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	1.4E-03	mg/kg-day	3.0E-03	mg/kg-day	0.45
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	8.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.27
				Iron	1.52E+04	mg/kg	---	---	---	---	---	1.9E-01	mg/kg-day	7.0E-01	mg/kg-day	0.28
				Lead	2.23E+02	mg/kg	---	---	---	---	---	2.9E-03	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	3.9E-03	mg/kg-day	7.0E-02	mg/kg-day	0.055
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	4.7E-06	mg/kg-day	1.6E-04	mg/kg-day	0.030
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	9.6E-04	mg/kg-day	5.0E-03	mg/kg-day	0.19
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	2.0E-02	mg/kg-day	3.0E-01	mg/kg-day	0.068
			Ingestion Total								---					1.9
			Dermal	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	2.8E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00055
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	7.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	6.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	8.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	8.1E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	3.3E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	7.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.026
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	2.2E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0090
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA

TABLE A-7.2f-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.036
			Inhalation	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	5.3E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.2E-09	mg/m3	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.9E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	6.4E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	5.0E-09	mg/m3	1.5E-05	mg/m3	0.00034
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	1.0E-05	mg/m3	0.00043
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	7.3E-08	mg/m3	1.0E-04	mg/m3	0.00073
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.52E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	2.1E-07	mg/m3	5.0E-05	mg/m3	0.0042
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	3.0E-04	mg/m3	0.00000085
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	5.2E-08	mg/m3	3.9E-06	mg/m3	0.013
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	1.1E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.021
	Aggregate Soil Total										---					1.9
Soil Total											---					1.9
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.9

TABLE A-7.2f-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	1.2E-08	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.9E-07	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	6.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	2.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.9E-06	---	---	---	---	---
				Benzo(a)pyrene	1.34E+00	mg/kg	2.1E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.6E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.82E+00	mg/kg	2.8E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.9E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.75E+00	mg/kg	2.7E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.6E-07	---	---	---	---	---
				Carbazole	2.72E-01	mg/kg	4.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	5.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.6E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	1.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-06	---	---	---	---	---
				Metals												
				Aluminum	9.34E+03	mg/kg	1.5E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.30E+00	mg/kg	1.1E-05	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.7E-05	---	---	---	---	---
				Cadmium	6.28E+00	mg/kg	9.8E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.06E+02	mg/kg	1.7E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.6E-04	---	---	---	---	---
				Cobalt	6.37E+00	mg/kg	1.0E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.52E+04	mg/kg	2.4E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.23E+02	mg/kg	3.5E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.04E+02	mg/kg	4.8E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.70E-01	mg/kg	5.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	7.49E+01	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.60E+03	mg/kg	2.5E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								4.8E-04					---
			Dermal	Dieldrin	7.74E-03	mg/kg	3.8E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	6.1E-08	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.0E-06	---	---	---	---	---
				Benzo(a)pyrene	1.34E+00	mg/kg	8.6E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.5E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.82E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.75E+00	mg/kg	1.1E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.3E-07	---	---	---	---	---
				Carbazole	2.72E-01	mg/kg	1.7E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.1E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	---	---	---	---	---
				Metals												
				Aluminum	9.34E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.30E+00	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-06	---	---	---	---	---
				Cadmium	6.28E+00	mg/kg	3.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.06E+02	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.37E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.2f-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.23E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.04E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.70E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	7.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.60E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.1E-05					---
			Inhalation	Dieldrin	7.74E-03	mg/kg	2.3E-12	mg/m3	4.6E-03	(µg/m3)-1	1.1E-11	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	4.8E-10	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	---	---	---	---	---
				Benzo(a)pyrene	1.34E+00	mg/kg	4.0E-10	mg/m3	1.1E-03	(µg/m3)-1	1.1E-09	---	---	---	---	---
				Benzo(b)fluoranthene	1.82E+00	mg/kg	5.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	---	---	---	---	---
				Benzo(k)fluoranthene	1.75E+00	mg/kg	5.2E-10	mg/m3	1.1E-04	(µg/m3)-1	1.4E-10	---	---	---	---	---
				Carbazole	2.72E-01	mg/kg	8.0E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	9.6E-11	mg/m3	1.2E-03	(µg/m3)-1	2.9E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	2.1E-10	mg/m3	1.1E-04	(µg/m3)-1	5.9E-11	---	---	---	---	---
				Metals												
				Aluminum	9.34E+03	mg/kg	2.8E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	7.30E+00	mg/kg	2.2E-09	mg/m3	4.3E-03	(µg/m3)-1	9.3E-09	---	---	---	---	---
				Cadmium	6.28E+00	mg/kg	1.9E-09	mg/m3	1.8E-03	(µg/m3)-1	3.3E-09	---	---	---	---	---
				Chromium Total	1.06E+02	mg/kg	3.1E-08	mg/m3	8.4E-02	(µg/m3)-1	6.6E-06	---	---	---	---	---
				Cobalt	6.37E+00	mg/kg	1.9E-09	mg/m3	9.0E-03	(µg/m3)-1	1.7E-08	---	---	---	---	---
				Iron	1.52E+04	mg/kg	4.5E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	2.23E+02	mg/kg	6.6E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	3.04E+02	mg/kg	9.0E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	3.70E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.8E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	7.49E+01	mg/kg	2.2E-08	mg/m3	1.5E-02	(µg/m3)-1	3.3E-07	---	---	---	---	---
				Zinc	1.60E+03	mg/kg	4.7E-07	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								7.0E-06					---
	Aggregate Soil Total										5.2E-04					---
Soil Total											5.2E-04					---
										Total of Receptor Risks Across All Media	5.2E-04			Total of Receptor Hazards Across All Media		---

TABLE A-7.2f-8 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	1.9E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.0E-09	1.3E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00026
				Di-n-octyl phthalate	3.85E-01	mg/kg	9.2E-09	mg/kg-day	NA	---	NA	6.5E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-08	2.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	3.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-07	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	4.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.2E-08	3.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.1E-09	2.9E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	6.5E-09	mg/kg-day	NA	---	NA	4.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.7E-08	5.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-08	1.2E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	2.2E-04	mg/kg-day	NA	---	NA	1.6E-02	mg/kg-day	1.0E+00	mg/kg-day	0.016
				Arsenic	7.30E+00	mg/kg	1.8E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.6E-07	1.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.041
				Cadmium	6.28E+00	mg/kg	1.5E-07	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	1.0E-03	mg/kg-day	0.011
				Chromium Total	1.06E+02	mg/kg	2.5E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.3E-06	1.8E-04	mg/kg-day	3.0E-03	mg/kg-day	0.059
				Cobalt	6.37E+00	mg/kg	1.5E-07	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.036
				Iron	1.52E+04	mg/kg	3.6E-04	mg/kg-day	NA	---	NA	2.5E-02	mg/kg-day	7.0E-01	mg/kg-day	0.036
				Lead	2.23E+02	mg/kg	5.4E-06	mg/kg-day	NA	---	NA	3.7E-04	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	7.3E-06	mg/kg-day	NA	---	NA	5.1E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0073
				Mercury	3.70E-01	mg/kg	8.9E-09	mg/kg-day	NA	---	NA	6.2E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0039
				Thallium	1.30E+00	mg/kg	3.1E-08	mg/kg-day	NA	---	NA	2.2E-06	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	1.8E-06	mg/kg-day	NA	---	NA	1.3E-04	mg/kg-day	5.0E-03	mg/kg-day	0.025
				Zinc	1.60E+03	mg/kg	3.8E-05	mg/kg-day	NA	---	NA	2.7E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0090
			Ingestion Total								1.9E-06					0.24
			Dermal	Dieldrin	7.74E-03	mg/kg	5.6E-11	mg/kg-day	1.6E+01	(mg/kg-day)-1	8.9E-10	3.9E-09	mg/kg-day	5.0E-05	mg/kg-day	0.000078
				Di-n-octyl phthalate	3.85E-01	mg/kg	2.8E-09	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-08	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.2E-08	8.8E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-08	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.2E-09	1.1E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	2.5E-09	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	3.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.2E-08	2.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	6.7E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.9E-09	4.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.30E+00	mg/kg	1.6E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.4E-08	1.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0037
				Cadmium	6.28E+00	mg/kg	4.5E-10	mg/kg-day	NA	---	NA	3.2E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0013
				Chromium Total	1.06E+02	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.37E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA

TABLE A-7.2f-8 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.23E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.70E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.60E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.7E-07					0.0050
			Inhalation	Dieldrin	7.74E-03	mg/kg	9.5E-12	mg/m3	4.6E-03	(µg/m3)-1	4.3E-11	6.6E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	4.7E-10	mg/m3	NA	---	NA	3.3E-08	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	2.0E-09	mg/m3	1.1E-04	(µg/m3)-1	2.2E-10	1.4E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	1.6E-09	mg/m3	1.1E-03	(µg/m3)-1	1.8E-09	1.1E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	2.2E-09	mg/m3	1.1E-04	(µg/m3)-1	2.4E-10	1.6E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	2.1E-09	mg/m3	1.1E-04	(µg/m3)-1	2.3E-10	1.5E-07	mg/m3	NA	---	NA
				Carbazole	2.72E-01	mg/kg	3.3E-10	mg/m3	NA	---	NA	2.3E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	4.0E-10	mg/m3	1.2E-03	(µg/m3)-1	4.8E-10	2.8E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	8.8E-10	mg/m3	1.1E-04	(µg/m3)-1	9.6E-11	6.1E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	1.1E-05	mg/m3	NA	---	NA	8.0E-04	mg/m3	5.0E-03	mg/m3	0.16
				Arsenic	7.30E+00	mg/kg	8.9E-09	mg/m3	4.3E-03	(µg/m3)-1	3.8E-08	6.2E-07	mg/m3	1.5E-05	mg/m3	0.042
				Cadmium	6.28E+00	mg/kg	7.7E-09	mg/m3	1.8E-03	(µg/m3)-1	1.4E-08	5.4E-07	mg/m3	1.0E-05	mg/m3	0.054
				Chromium Total	1.06E+02	mg/kg	1.3E-07	mg/m3	8.4E-02	(µg/m3)-1	1.1E-05	9.1E-06	mg/m3	1.0E-04	mg/m3	0.091
				Cobalt	6.37E+00	mg/kg	7.8E-09	mg/m3	9.0E-03	(µg/m3)-1	7.0E-08	5.4E-07	mg/m3	6.0E-06	mg/m3	0.091
				Iron	1.52E+04	mg/kg	1.9E-05	mg/m3	NA	---	NA	1.3E-03	mg/m3	NA	---	NA
				Lead	2.23E+02	mg/kg	2.7E-07	mg/m3	NA	---	NA	1.9E-05	mg/m3	NA	---	NA
				Manganese	3.04E+02	mg/kg	3.7E-07	mg/m3	NA	---	NA	2.6E-05	mg/m3	5.0E-05	mg/m3	0.52
				Mercury	3.70E-01	mg/kg	4.5E-10	mg/m3	NA	---	NA	3.2E-08	mg/m3	3.0E-04	mg/m3	0.00011
				Thallium	1.30E+00	mg/kg	1.6E-09	mg/m3	NA	---	NA	1.1E-07	mg/m3	NA	---	NA
				Vanadium	7.49E+01	mg/kg	9.1E-08	mg/m3	1.5E-02	(µg/m3)-1	1.4E-06	6.4E-06	mg/m3	5.6E-05	mg/m3	0.11
				Zinc	1.60E+03	mg/kg	2.0E-06	mg/m3	NA	---	NA	1.4E-04	mg/m3	NA	---	NA
			Inhalation Total								1.2E-05					1.1
	Aggregate Soil Total										1.4E-05					1.3
Soil Total											1.4E-05					1.3
										Total of Receptor Risks Across All Media	1.4E-05				Total of Receptor Hazards Across All Media	1.3

TABLE A-7.1f-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Ingestion	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	7.2E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00014
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	7.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	5.3E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.9E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0069
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.3E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0043
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0042
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	4.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Iron	1.40E+04	mg/kg	---	---	---	---	---	9.6E-03	mg/kg-day	7.0E-01	mg/kg-day	0.014
				Lead	2.20E+02	mg/kg	---	---	---	---	---	1.5E-04	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0029
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0017
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	5.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.012
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	1.2E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0040
			Ingestion Total								---					0.081
			Dermal	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	8.2E-10	mg/kg-day	5.0E-05	mg/kg-day	0.000016
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	3.0E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA

TABLE A-7.1f-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Dermal	Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	3.6E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	7.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00059
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.9E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00020
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.40E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.00081
			Inhalation	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	7.2E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	7.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.4E-09	mg/m3	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	5.3E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.9E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	5.2E-09	mg/m3	1.5E-05	mg/m3	0.00035
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	1.0E-05	mg/m3	0.00044
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	1.3E-08	mg/m3	1.0E-04	mg/m3	0.00013
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.40E+04	mg/kg	---	---	---	---	---	9.7E-06	mg/m3	NA	---	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0040
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	3.0E-04	mg/m3	0.00000090
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	5.9E-08	mg/m3	3.9E-06	mg/m3	0.015
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	1.2E-06	mg/m3	NA	---	NA

TABLE A-7.1f-1 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Inhalation Total								---					0.022
	Surface Soil Total										---					0.10
Soil Total											---					0.10
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.10

TABLE A-7.1f-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Ingestion	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	6.7E-08	mg/kg-day	5.0E-05	mg/kg-day	0.0013
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	6.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	4.9E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.4E-02	mg/kg-day	1.0E+00	mg/kg-day	0.064
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	4.9E-05	mg/kg-day	3.0E-04	mg/kg-day	0.16
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.0E-05	mg/kg-day	1.0E-03	mg/kg-day	0.040
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	1.2E-04	mg/kg-day	3.0E-03	mg/kg-day	0.039
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	4.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.13
				Iron	1.40E+04	mg/kg	---	---	---	---	---	9.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.13
				Lead	2.20E+02	mg/kg	---	---	---	---	---	1.4E-03	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	1.9E-03	mg/kg-day	7.0E-02	mg/kg-day	0.027
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	1.6E-04	mg/kg-day	0.016
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.3E-06	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	5.5E-04	mg/kg-day	5.0E-03	mg/kg-day	0.11
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	1.1E-02	mg/kg-day	3.0E-01	mg/kg-day	0.037
			Ingestion Total								---					0.76
			Dermal	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	7.5E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00015
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.8E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	9.8E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	2.0E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA

TABLE A-7.1f-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Dermal	Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	3.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	7.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0054
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0018
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.40E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.0074
			Inhalation	Dieldrin	1.05E-02	mg/kg	---	---	---	---	---	7.2E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.05E+00	mg/kg	---	---	---	---	---	7.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	2.11E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.04E+00	mg/kg	---	---	---	---	---	1.4E-09	mg/m3	NA	---	NA
				Carbazole	2.87E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	---	---	---	---	---	2.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	---	---	---	---	---	5.3E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.01E+04	mg/kg	---	---	---	---	---	6.9E-06	mg/m3	5.0E-03	mg/m3	0.0014
				Arsenic	7.60E+00	mg/kg	---	---	---	---	---	5.2E-09	mg/m3	1.5E-05	mg/m3	0.00035
				Cadmium	6.31E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	1.0E-05	mg/m3	0.00044
				Chromium Total	1.84E+01	mg/kg	---	---	---	---	---	1.3E-08	mg/m3	1.0E-04	mg/m3	0.00013
				Cobalt	6.33E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.40E+04	mg/kg	---	---	---	---	---	9.7E-06	mg/m3	NA	---	NA
				Lead	2.20E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	2.92E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0040
				Mercury	3.91E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	3.0E-04	mg/m3	0.00000090
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	8.54E+01	mg/kg	---	---	---	---	---	5.9E-08	mg/m3	3.9E-06	mg/m3	0.015
				Zinc	1.76E+03	mg/kg	---	---	---	---	---	1.2E-06	mg/m3	NA	---	NA

TABLE A-7.1f-2 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Inhalation Total								---					0.022
	Surface Soil Total										---					0.79
Soil Total											---					0.79
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.79

TABLE A-7.1f-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Ingestion	Dieldrin	1.05E-02	mg/kg	2.6E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	4.2E-08	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	9.7E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	4.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-06	---	---	---	---	---
				Benzo(a)pyrene	1.05E+00	mg/kg	2.6E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.6E-05	---	---	---	---	---
				Benzo(b)fluoranthene	2.11E+00	mg/kg	5.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-06	---	---	---	---	---
				Benzo(k)fluoranthene	2.04E+00	mg/kg	5.1E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.0E-07	---	---	---	---	---
				Carbazole	2.87E-01	mg/kg	7.2E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	8.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.2E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	2.5E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.60E+00	mg/kg	1.9E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.9E-06	---	---	---	---	---
				Cadmium	6.31E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.84E+01	mg/kg	4.6E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.9E-05	---	---	---	---	---
				Cobalt	6.33E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.40E+04	mg/kg	3.5E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.20E+02	mg/kg	5.5E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.92E+02	mg/kg	7.3E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.91E-01	mg/kg	9.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	8.54E+01	mg/kg	2.1E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.76E+03	mg/kg	4.4E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								5.0E-05					---
			Dermal	Dieldrin	1.05E-02	mg/kg	3.0E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	4.7E-09	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	6.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-07	---	---	---	---	---
				Benzo(a)pyrene	1.05E+00	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-06	---	---	---	---	---
				Benzo(b)fluoranthene	2.11E+00	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.6E-07	---	---	---	---	---
				Benzo(k)fluoranthene	2.04E+00	mg/kg	7.5E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.4E-08	---	---	---	---	---
				Carbazole	2.87E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	1.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.6E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-07	---	---	---	---	---

TABLE A-7.1f-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Dermal	Metals												
				Aluminum	1.01E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.60E+00	mg/kg	6.4E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.7E-08	---	---	---	---	---
				Cadmium	6.31E+00	mg/kg	1.8E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.84E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.33E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.40E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.20E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.92E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.91E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	8.54E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.76E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.2E-06					---
			Inhalation	Dieldrin	1.05E-02	mg/kg	9.3E-13	mg/m3	4.6E-03	(µg/m3)-1	4.3E-12	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	3.4E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.87E+00	mg/kg	1.7E-10	mg/m3	1.1E-04	(µg/m3)-1	8.2E-11	---	---	---	---	---
				Benzo(a)pyrene	1.05E+00	mg/kg	9.3E-11	mg/m3	1.1E-03	(µg/m3)-1	4.6E-10	---	---	---	---	---
				Benzo(b)fluoranthene	2.11E+00	mg/kg	1.9E-10	mg/m3	1.1E-04	(µg/m3)-1	9.3E-11	---	---	---	---	---
				Benzo(k)fluoranthene	2.04E+00	mg/kg	1.8E-10	mg/m3	1.1E-04	(µg/m3)-1	9.0E-11	---	---	---	---	---
				Carbazole	2.87E-01	mg/kg	2.5E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.51E-01	mg/kg	3.1E-11	mg/m3	1.2E-03	(µg/m3)-1	1.7E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.72E-01	mg/kg	6.9E-11	mg/m3	1.1E-04	(µg/m3)-1	3.4E-11	---	---	---	---	---
				Metals												
				Aluminum	1.01E+04	mg/kg	8.9E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	7.60E+00	mg/kg	6.7E-10	mg/m3	4.3E-03	(µg/m3)-1	2.9E-09	---	---	---	---	---
				Cadmium	6.31E+00	mg/kg	5.6E-10	mg/m3	1.8E-03	(µg/m3)-1	1.0E-09	---	---	---	---	---
				Chromium Total	1.84E+01	mg/kg	1.6E-09	mg/m3	8.4E-02	(µg/m3)-1	6.2E-07	---	---	---	---	---
				Cobalt	6.33E+00	mg/kg	5.6E-10	mg/m3	9.0E-03	(µg/m3)-1	5.1E-09	---	---	---	---	---
				Iron	1.40E+04	mg/kg	1.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	2.20E+02	mg/kg	2.0E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.92E+02	mg/kg	2.6E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	3.91E-01	mg/kg	3.5E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	8.54E+01	mg/kg	7.6E-09	mg/m3	1.5E-02	(µg/m3)-1	1.1E-07	---	---	---	---	---
				Zinc	1.76E+03	mg/kg	1.6E-07	mg/m3	NA	---	NA	---	---	---	---	---

TABLE A-7.1f-3 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area F	Inhalation Total								7.4E-07					---
	Surface Soil Total										5.5E-05					---
Soil Total											5.5E-05					---
										Total of Receptor Risks Across All Media	5.5E-05				Total of Receptor Hazards Across All Media	---

TABLE A-7.2f-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	5.3E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00011
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	9.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	4.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	6.4E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0064
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.3E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0043
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	7.3E-05	mg/kg-day	3.0E-03	mg/kg-day	0.024
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	4.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Iron	1.52E+04	mg/kg	---	---	---	---	---	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.015
				Lead	2.23E+02	mg/kg	---	---	---	---	---	1.5E-04	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	2.1E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0030
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0016
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	5.1E-05	mg/kg-day	5.0E-03	mg/kg-day	0.010
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	1.1E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0037
			Ingestion Total								---					0.10
			Dermal	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	6.0E-10	mg/kg-day	5.0E-05	mg/kg-day	0.000012
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	3.0E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	2.8E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	3.3E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	7.3E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00057
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.9E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00020
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA

TABLE A-7.2f-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.00078
			Inhalation	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	5.3E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.2E-09	mg/m3	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.9E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	6.4E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	5.0E-09	mg/m3	1.5E-05	mg/m3	0.00034
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	1.0E-05	mg/m3	0.00043
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	7.3E-08	mg/m3	1.0E-04	mg/m3	0.00073
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.52E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	2.1E-07	mg/m3	5.0E-05	mg/m3	0.0042
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	3.0E-04	mg/m3	0.00000085
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	5.2E-08	mg/m3	3.9E-06	mg/m3	0.013
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	1.1E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.021
	Aggregate Soil Total										---					0.12
Soil Total											---					0.12
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.12

TABLE A-7.2f-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	4.9E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00099
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	8.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.1E-05	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.1E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	4.6E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	6.0E-02	mg/kg-day	1.0E+00	mg/kg-day	0.060
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	4.7E-05	mg/kg-day	3.0E-04	mg/kg-day	0.16
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.0E-05	mg/kg-day	1.0E-03	mg/kg-day	0.040
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	6.8E-04	mg/kg-day	3.0E-03	mg/kg-day	0.23
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	4.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.14
				Iron	1.52E+04	mg/kg	---	---	---	---	---	9.7E-02	mg/kg-day	7.0E-01	mg/kg-day	0.14
				Lead	2.23E+02	mg/kg	---	---	---	---	---	1.4E-03	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	1.9E-03	mg/kg-day	7.0E-02	mg/kg-day	0.028
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	1.6E-04	mg/kg-day	0.015
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.3E-06	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	4.8E-04	mg/kg-day	5.0E-03	mg/kg-day	0.10
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	1.0E-02	mg/kg-day	3.0E-01	mg/kg-day	0.034
			Ingestion Total								---					0.93
			Dermal	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	5.5E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00011
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.8E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	3.0E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	6.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0052
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.5E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0018
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA

TABLE A-7.2f-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.0071
			Inhalation	Dieldrin	7.74E-03	mg/kg	---	---	---	---	---	5.3E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	---	---	---	---	---	2.7E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	---	---	---	---	---	9.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	---	---	---	---	---	1.2E-09	mg/m3	NA	---	NA
				Carbazole	2.72E-01	mg/kg	---	---	---	---	---	1.9E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	---	---	---	---	---	2.2E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	---	---	---	---	---	5.0E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	---	---	---	---	---	6.4E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Arsenic	7.30E+00	mg/kg	---	---	---	---	---	5.0E-09	mg/m3	1.5E-05	mg/m3	0.00034
				Cadmium	6.28E+00	mg/kg	---	---	---	---	---	4.3E-09	mg/m3	1.0E-05	mg/m3	0.00043
				Chromium Total	1.06E+02	mg/kg	---	---	---	---	---	7.3E-08	mg/m3	1.0E-04	mg/m3	0.00073
				Cobalt	6.37E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00073
				Iron	1.52E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	2.23E+02	mg/kg	---	---	---	---	---	1.5E-07	mg/m3	NA	---	NA
				Manganese	3.04E+02	mg/kg	---	---	---	---	---	2.1E-07	mg/m3	5.0E-05	mg/m3	0.0042
				Mercury	3.70E-01	mg/kg	---	---	---	---	---	2.6E-10	mg/m3	3.0E-04	mg/m3	0.00000085
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	7.49E+01	mg/kg	---	---	---	---	---	5.2E-08	mg/m3	3.9E-06	mg/m3	0.013
				Zinc	1.60E+03	mg/kg	---	---	---	---	---	1.1E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.021
	Aggregate Soil Total										---					0.96
Soil Total											---					0.96
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	0.96

TABLE A-7.2f-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	1.9E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.1E-08	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	9.7E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	4.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-06	---	---	---	---	---
				Benzo(a)pyrene	1.34E+00	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.82E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.75E+00	mg/kg	4.4E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.6E-07	---	---	---	---	---
				Carbazole	2.72E-01	mg/kg	6.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	8.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				Metals												
				Aluminum	9.34E+03	mg/kg	2.3E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.30E+00	mg/kg	1.8E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.8E-06	---	---	---	---	---
				Cadmium	6.28E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.06E+02	mg/kg	2.7E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.1E-04	---	---	---	---	---
				Cobalt	6.37E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.52E+04	mg/kg	3.8E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.23E+02	mg/kg	5.6E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.04E+02	mg/kg	7.6E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.70E-01	mg/kg	9.3E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	7.49E+01	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.60E+03	mg/kg	4.0E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.4E-04					---
			Dermal	Dieldrin	7.74E-03	mg/kg	2.2E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.5E-09	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-07	---	---	---	---	---
				Benzo(a)pyrene	1.34E+00	mg/kg	4.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.9E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.82E+00	mg/kg	6.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-07	---	---	---	---	---
				Benzo(k)fluoranthene	1.75E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.8E-08	---	---	---	---	---
				Carbazole	2.72E-01	mg/kg	1.0E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.0E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	2.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-07	---	---	---	---	---
				Metals												
				Aluminum	9.34E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	7.30E+00	mg/kg	6.2E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	9.3E-08	---	---	---	---	---
				Cadmium	6.28E+00	mg/kg	1.8E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.06E+02	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.37E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.2f-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	2.23E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	3.04E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	3.70E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	7.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.60E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.6E-06					---
			Inhalation	Dieldrin	7.74E-03	mg/kg	6.9E-13	mg/m3	4.6E-03	(µg/m3)-1	3.2E-12	---	---	---	---	---
				Di-n-octyl phthalate	3.85E-01	mg/kg	3.4E-11	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	7.1E-11	---	---	---	---	---
				Benzo(a)pyrene	1.34E+00	mg/kg	1.2E-10	mg/m3	1.1E-03	(µg/m3)-1	5.9E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.82E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	8.0E-11	---	---	---	---	---
				Benzo(k)fluoranthene	1.75E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	7.7E-11	---	---	---	---	---
				Carbazole	2.72E-01	mg/kg	2.4E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	2.9E-11	mg/m3	1.2E-03	(µg/m3)-1	1.6E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	6.4E-11	mg/m3	1.1E-04	(µg/m3)-1	3.2E-11	---	---	---	---	---
				Metals												
				Aluminum	9.34E+03	mg/kg	8.3E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	7.30E+00	mg/kg	6.5E-10	mg/m3	4.3E-03	(µg/m3)-1	2.8E-09	---	---	---	---	---
				Cadmium	6.28E+00	mg/kg	5.6E-10	mg/m3	1.8E-03	(µg/m3)-1	1.0E-09	---	---	---	---	---
				Chromium Total	1.06E+02	mg/kg	9.4E-09	mg/m3	8.4E-02	(µg/m3)-1	3.6E-06	---	---	---	---	---
				Cobalt	6.37E+00	mg/kg	5.7E-10	mg/m3	9.0E-03	(µg/m3)-1	5.1E-09	---	---	---	---	---
				Iron	1.52E+04	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	2.23E+02	mg/kg	2.0E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	3.04E+02	mg/kg	2.7E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	3.70E-01	mg/kg	3.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	7.49E+01	mg/kg	6.7E-09	mg/m3	1.5E-02	(µg/m3)-1	1.0E-07	---	---	---	---	---
				Zinc	1.60E+03	mg/kg	1.4E-07	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								3.7E-06					---
	Aggregate Soil Total										1.5E-04					---
Soil Total											1.5E-04					---
										Total of Receptor Risks Across All Media	1.5E-04			Total of Receptor Hazards Across All Media		---

TABLE A-7.2f-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Ingestion	Dieldrin	7.74E-03	mg/kg	1.1E-11	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.8E-10	7.9E-10	mg/kg-day	5.0E-05	mg/kg-day	0.000016
				Di-n-octyl phthalate	3.85E-01	mg/kg	5.6E-10	mg/kg-day	NA	---	NA	3.9E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	2.3E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-09	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-08	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	2.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-09	1.8E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	2.5E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.9E-10	1.8E-07	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	4.0E-10	mg/kg-day	NA	---	NA	2.8E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	4.7E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-09	3.3E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	1.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.6E-10	7.3E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	9.5E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00095
				Arsenic	7.30E+00	mg/kg	1.1E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-08	7.4E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0025
				Cadmium	6.28E+00	mg/kg	9.1E-09	mg/kg-day	NA	---	NA	6.4E-07	mg/kg-day	1.0E-03	mg/kg-day	0.00064
				Chromium Total	1.06E+02	mg/kg	1.5E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	7.7E-08	1.1E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0036
				Cobalt	6.37E+00	mg/kg	9.3E-09	mg/kg-day	NA	---	NA	6.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0022
				Iron	1.52E+04	mg/kg	2.2E-05	mg/kg-day	NA	---	NA	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0022
				Lead	2.23E+02	mg/kg	3.2E-07	mg/kg-day	NA	---	NA	2.3E-05	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	4.4E-07	mg/kg-day	NA	---	NA	3.1E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00044
				Mercury	3.70E-01	mg/kg	5.4E-10	mg/kg-day	NA	---	NA	3.8E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00024
				Thallium	1.30E+00	mg/kg	1.9E-09	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	7.6E-06	mg/kg-day	5.0E-03	mg/kg-day	0.0015
				Zinc	1.60E+03	mg/kg	2.3E-06	mg/kg-day	NA	---	NA	1.6E-04	mg/kg-day	3.0E-01	mg/kg-day	0.00054
			Ingestion Total								1.2E-07					0.015
			Dermal	Dieldrin	7.74E-03	mg/kg	3.7E-12	mg/kg-day	1.6E+01	(mg/kg-day)-1	5.9E-11	2.6E-10	mg/kg-day	5.0E-05	mg/kg-day	0.0000052
				Di-n-octyl phthalate	3.85E-01	mg/kg	1.8E-10	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	1.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.3E-10	7.0E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	8.4E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.1E-09	5.8E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	1.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.3E-10	7.9E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	1.1E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.0E-11	7.6E-08	mg/kg-day	NA	---	NA
				Carbazole	2.72E-01	mg/kg	1.7E-10	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	2.0E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.5E-09	1.4E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	4.5E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-10	3.1E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	7.30E+00	mg/kg	1.1E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-09	7.4E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00025
				Cadmium	6.28E+00	mg/kg	3.0E-11	mg/kg-day	NA	---	NA	2.1E-09	mg/kg-day	2.5E-05	mg/kg-day	0.000084
				Chromium Total	1.06E+02	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.37E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA

TABLE A-7.2f-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dermal	Iron	1.52E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.23E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	3.04E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	3.70E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	7.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.60E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.1E-08					0.00033
			Inhalation	Dieldrin	7.74E-03	mg/kg	1.9E-12	mg/m3	4.6E-03	(µg/m3)-1	8.7E-12	1.3E-10	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.85E-01	mg/kg	9.4E-11	mg/m3	NA	---	NA	6.6E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	1.61E+00	mg/kg	3.9E-10	mg/m3	1.1E-04	(µg/m3)-1	4.3E-11	2.8E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.34E+00	mg/kg	3.3E-10	mg/m3	1.1E-03	(µg/m3)-1	3.6E-10	2.3E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.82E+00	mg/kg	4.4E-10	mg/m3	1.1E-04	(µg/m3)-1	4.9E-11	3.1E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.75E+00	mg/kg	4.3E-10	mg/m3	1.1E-04	(µg/m3)-1	4.7E-11	3.0E-08	mg/m3	NA	---	NA
				Carbazole	2.72E-01	mg/kg	6.6E-11	mg/m3	NA	---	NA	4.7E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	3.25E-01	mg/kg	7.9E-11	mg/m3	1.2E-03	(µg/m3)-1	9.5E-11	5.6E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.17E-01	mg/kg	1.8E-10	mg/m3	1.1E-04	(µg/m3)-1	1.9E-11	1.2E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.34E+03	mg/kg	2.3E-06	mg/m3	NA	---	NA	1.6E-04	mg/m3	5.0E-03	mg/m3	0.032
				Arsenic	7.30E+00	mg/kg	1.8E-09	mg/m3	4.3E-03	(µg/m3)-1	7.7E-09	1.2E-07	mg/m3	1.5E-05	mg/m3	0.0083
				Cadmium	6.28E+00	mg/kg	1.5E-09	mg/m3	1.8E-03	(µg/m3)-1	2.8E-09	1.1E-07	mg/m3	1.0E-05	mg/m3	0.011
				Chromium Total	1.06E+02	mg/kg	2.6E-08	mg/m3	8.4E-02	(µg/m3)-1	2.2E-06	1.8E-06	mg/m3	1.0E-04	mg/m3	0.018
				Cobalt	6.37E+00	mg/kg	1.6E-09	mg/m3	9.0E-03	(µg/m3)-1	1.4E-08	1.1E-07	mg/m3	6.0E-06	mg/m3	0.018
				Iron	1.52E+04	mg/kg	3.7E-06	mg/m3	NA	---	NA	2.6E-04	mg/m3	NA	---	NA
				Lead	2.23E+02	mg/kg	5.4E-08	mg/m3	NA	---	NA	3.8E-06	mg/m3	NA	---	NA
				Manganese	3.04E+02	mg/kg	7.4E-08	mg/m3	NA	---	NA	5.2E-06	mg/m3	5.0E-05	mg/m3	0.10
				Mercury	3.70E-01	mg/kg	9.0E-11	mg/m3	NA	---	NA	6.3E-09	mg/m3	3.0E-04	mg/m3	0.000021
				Thallium	1.30E+00	mg/kg	3.2E-10	mg/m3	NA	---	NA	2.2E-08	mg/m3	NA	---	NA
				Vanadium	7.49E+01	mg/kg	1.8E-08	mg/m3	1.5E-02	(µg/m3)-1	2.7E-07	1.3E-06	mg/m3	5.6E-05	mg/m3	0.023
				Zinc	1.60E+03	mg/kg	3.9E-07	mg/m3	NA	---	NA	2.7E-05	mg/m3	NA	---	NA
			Inhalation Total								2.5E-06					0.21
	Aggregate Soil Total										2.6E-06					0.23
Soil Total											2.6E-06					0.23
										Total of Receptor Risks Across All Media	2.6E-06				Total of Receptor Hazards Across All Media	0.23

TABLE A-7.1g-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area G	Ingestion	PAHs												
				Benzo(a)anthracene	8.10E-01	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	7.9E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.20E-01	mg/kg	3.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-06	9.0E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.30E-01	mg/kg	3.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	9.1E-07	mg/kg-day	NA	---	NA
				Carbazole	1.30E-01	mg/kg	4.5E-08	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.50E-01	mg/kg	8.7E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.4E-07	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	5.70E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-07	5.6E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.08E+04	mg/kg	3.8E-03	mg/kg-day	NA	---	NA	1.1E-02	mg/kg-day	1.0E+00	mg/kg-day	0.011
				Antimony	4.07E+01	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	4.0E-05	mg/kg-day	4.0E-04	mg/kg-day	0.10
				Arsenic	2.07E+01	mg/kg	7.2E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-05	2.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.068
				Cadmium	2.26E+01	mg/kg	7.9E-06	mg/kg-day	NA	---	NA	2.2E-05	mg/kg-day	1.0E-03	mg/kg-day	0.022
				Chromium Total	6.63E+01	mg/kg	2.3E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.2E-05	6.5E-05	mg/kg-day	3.0E-03	mg/kg-day	0.022
				Cobalt	1.37E+01	mg/kg	4.8E-06	mg/kg-day	NA	---	NA	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.045
				Iron	1.34E+04	mg/kg	4.7E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.019
				Lead	2.96E+03	mg/kg	1.0E-03	mg/kg-day	NA	---	NA	2.9E-03	mg/kg-day	NA	---	NA
				Manganese	2.14E+02	mg/kg	7.5E-05	mg/kg-day	NA	---	NA	2.1E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0030
				Mercury	1.20E+00	mg/kg	4.2E-07	mg/kg-day	NA	---	NA	1.2E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0073
				Nickel	4.30E+02	mg/kg	1.5E-04	mg/kg-day	NA	---	NA	4.2E-04	mg/kg-day	2.0E-02	mg/kg-day	0.021
				Thallium	1.60E+00	mg/kg	5.6E-07	mg/kg-day	NA	---	NA	1.6E-06	mg/kg-day	NA	---	NA
				Vanadium	5.43E+01	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	5.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.011
				Zinc	1.37E+04	mg/kg	4.8E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	3.0E-01	mg/kg-day	0.045
			Ingestion Total								2.6E-05					0.37
			Dermal	PAHs												
				Benzo(a)anthracene	8.10E-01	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-07	6.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.20E-01	mg/kg	2.8E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-06	7.7E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.30E-01	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	7.8E-07	mg/kg-day	NA	---	NA
				Carbazole	1.30E-01	mg/kg	3.9E-08	mg/kg-day	NA	---	NA	1.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.50E-01	mg/kg	7.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.5E-07	2.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	5.70E-01	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-07	4.8E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.08E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	4.07E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	2.07E+01	mg/kg	1.4E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.1E-06	4.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.013
				Cadmium	2.26E+01	mg/kg	5.2E-08	mg/kg-day	NA	---	NA	1.5E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0058
				Chromium Total	6.63E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	1.37E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.34E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.96E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.14E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.1g-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area G	Dermal	Mercury	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	4.30E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.60E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	5.43E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.37E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								5.2E-06					0.019
			Inhalation	PAHs												
				Benzo(a)anthracene	8.10E-01	mg/kg	4.8E-11	mg/m3	1.1E-04	(µg/m3)-1	5.2E-12	1.3E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	9.20E-01	mg/kg	5.4E-11	mg/m3	1.1E-03	(µg/m3)-1	5.9E-11	1.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	9.30E-01	mg/kg	5.5E-11	mg/m3	1.1E-04	(µg/m3)-1	6.0E-12	1.5E-10	mg/m3	NA	---	NA
				Carbazole	1.30E-01	mg/kg	7.6E-12	mg/m3	NA	---	NA	2.1E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.50E-01	mg/kg	1.5E-11	mg/m3	1.2E-03	(µg/m3)-1	1.8E-11	4.1E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	5.70E-01	mg/kg	3.3E-11	mg/m3	1.1E-04	(µg/m3)-1	3.7E-12	9.4E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.08E+04	mg/kg	6.3E-07	mg/m3	NA	---	NA	1.8E-06	mg/m3	5.0E-03	mg/m3	0.00036
				Antimony	4.07E+01	mg/kg	2.4E-09	mg/m3	NA	---	NA	6.7E-09	mg/m3	NA	---	NA
				Arsenic	2.07E+01	mg/kg	1.2E-09	mg/m3	4.3E-03	(µg/m3)-1	5.2E-09	3.4E-09	mg/m3	1.5E-05	mg/m3	0.00023
				Cadmium	2.26E+01	mg/kg	1.3E-09	mg/m3	1.8E-03	(µg/m3)-1	2.4E-09	3.7E-09	mg/m3	1.0E-05	mg/m3	0.00037
				Chromium Total	6.63E+01	mg/kg	3.9E-09	mg/m3	8.4E-02	(µg/m3)-1	3.3E-07	1.1E-08	mg/m3	1.0E-04	mg/m3	0.00011
				Cobalt	1.37E+01	mg/kg	8.0E-10	mg/m3	9.0E-03	(µg/m3)-1	7.2E-09	2.3E-09	mg/m3	6.0E-06	mg/m3	0.00038
				Iron	1.34E+04	mg/kg	7.9E-07	mg/m3	NA	---	NA	2.2E-06	mg/m3	NA	---	NA
				Lead	2.96E+03	mg/kg	1.7E-07	mg/m3	NA	---	NA	4.9E-07	mg/m3	NA	---	NA
				Manganese	2.14E+02	mg/kg	1.3E-08	mg/m3	NA	---	NA	3.5E-08	mg/m3	5.0E-05	mg/m3	0.00070
				Mercury	1.20E+00	mg/kg	7.0E-11	mg/m3	NA	---	NA	2.0E-10	mg/m3	3.0E-04	mg/m3	0.00000066
				Nickel	4.30E+02	mg/kg	2.5E-08	mg/m3	2.6E-04	(µg/m3)-1	6.6E-09	7.1E-08	mg/m3	9.0E-05	mg/m3	0.00079
				Thallium	1.60E+00	mg/kg	9.4E-11	mg/m3	NA	---	NA	2.6E-10	mg/m3	NA	---	NA
				Vanadium	5.43E+01	mg/kg	3.2E-09	mg/m3	1.5E-02	(µg/m3)-1	4.8E-08	8.9E-09	mg/m3	3.9E-06	mg/m3	0.0023
				Zinc	1.37E+04	mg/kg	8.0E-07	mg/m3	NA	---	NA	2.3E-06	mg/m3	NA	---	NA
			Inhalation Total								4.0E-07					0.0052
	Surface Soil Total										3.2E-05					0.40
Soil Total											3.2E-05					0.40
										Total of Receptor Risks Across All Media	3.2E-05			Total of Receptor Hazards Across All Media		0.40

TABLE A-7.2g-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Ingestion	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	2.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-07	6.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.8E-06	6.8E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	3.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-07	9.5E-07	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	3.8E-08	mg/kg-day	NA	---	NA	1.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.0E-07	1.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.7E-08	3.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	3.1E-03	mg/kg-day	NA	---	NA	8.6E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0086
				Antimony	4.07E+01	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	4.0E-05	mg/kg-day	4.0E-04	mg/kg-day	0.10
				Arsenic	1.31E+01	mg/kg	4.6E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.9E-06	1.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.043
				Cadmium	3.60E+01	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	3.5E-05	mg/kg-day	1.0E-03	mg/kg-day	0.035
				Chromium Total	3.92E+01	mg/kg	1.4E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.9E-06	3.8E-05	mg/kg-day	3.0E-03	mg/kg-day	0.013
				Cobalt	9.65E+00	mg/kg	3.4E-06	mg/kg-day	NA	---	NA	9.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.031
				Iron	1.95E+04	mg/kg	6.8E-03	mg/kg-day	NA	---	NA	1.9E-02	mg/kg-day	7.0E-01	mg/kg-day	0.027
				Lead	2.32E+03	mg/kg	8.1E-04	mg/kg-day	NA	---	NA	2.3E-03	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	9.9E-05	mg/kg-day	NA	---	NA	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0039
				Mercury	2.04E+00	mg/kg	7.1E-07	mg/kg-day	NA	---	NA	2.0E-06	mg/kg-day	1.6E-04	mg/kg-day	0.012
				Nickel	2.60E+02	mg/kg	9.1E-05	mg/kg-day	NA	---	NA	2.5E-04	mg/kg-day	2.0E-02	mg/kg-day	0.013
				Thallium	1.60E+00	mg/kg	5.6E-07	mg/kg-day	NA	---	NA	1.6E-06	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	1.2E-05	mg/kg-day	NA	---	NA	3.4E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0068
				Zinc	1.44E+04	mg/kg	5.0E-03	mg/kg-day	NA	---	NA	1.4E-02	mg/kg-day	3.0E-01	mg/kg-day	0.047
			Ingestion Total								1.7E-05					0.34
			Dermal	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	2.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-07	5.5E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	2.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.5E-06	5.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	8.1E-07	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	3.3E-08	mg/kg-day	NA	---	NA	9.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	5.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.3E-07	1.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	1.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.3E-08	3.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	4.07E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	1.31E+01	mg/kg	9.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-06	2.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0085
				Cadmium	3.60E+01	mg/kg	8.3E-08	mg/kg-day	NA	---	NA	2.3E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0093
				Chromium Total	3.92E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	9.65E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.95E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.32E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2g-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Dermal	Mercury	2.04E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	2.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.60E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.44E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								3.8E-06					0.018
			Inhalation	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	3.8E-11	mg/m3	1.1E-04	(µg/m3)-1	4.2E-12	1.1E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	4.1E-11	mg/m3	1.1E-03	(µg/m3)-1	4.5E-11	1.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	5.7E-11	mg/m3	1.1E-04	(µg/m3)-1	6.3E-12	1.6E-10	mg/m3	NA	---	NA
				Carbazole	1.10E-01	mg/kg	6.5E-12	mg/m3	NA	---	NA	1.8E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	1.1E-11	mg/m3	1.2E-03	(µg/m3)-1	1.4E-11	3.2E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	2.2E-11	mg/m3	1.1E-04	(µg/m3)-1	2.5E-12	6.2E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	5.1E-07	mg/m3	NA	---	NA	1.4E-06	mg/m3	5.0E-03	mg/m3	0.00029
				Antimony	4.07E+01	mg/kg	2.4E-09	mg/m3	NA	---	NA	6.7E-09	mg/m3	NA	---	NA
				Arsenic	1.31E+01	mg/kg	7.7E-10	mg/m3	4.3E-03	(µg/m3)-1	3.3E-09	2.2E-09	mg/m3	1.5E-05	mg/m3	0.00014
				Cadmium	3.60E+01	mg/kg	2.1E-09	mg/m3	1.8E-03	(µg/m3)-1	3.8E-09	5.9E-09	mg/m3	1.0E-05	mg/m3	0.00059
				Chromium Total	3.92E+01	mg/kg	2.3E-09	mg/m3	8.4E-02	(µg/m3)-1	1.9E-07	6.5E-09	mg/m3	1.0E-04	mg/m3	0.000065
				Cobalt	9.65E+00	mg/kg	5.7E-10	mg/m3	9.0E-03	(µg/m3)-1	5.1E-09	1.6E-09	mg/m3	6.0E-06	mg/m3	0.00026
				Iron	1.95E+04	mg/kg	1.1E-06	mg/m3	NA	---	NA	3.2E-06	mg/m3	NA	---	NA
				Lead	2.32E+03	mg/kg	1.4E-07	mg/m3	NA	---	NA	3.8E-07	mg/m3	NA	---	NA
				Manganese	2.82E+02	mg/kg	1.7E-08	mg/m3	NA	---	NA	4.6E-08	mg/m3	5.0E-05	mg/m3	0.00093
				Mercury	2.04E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	3.4E-10	mg/m3	3.0E-04	mg/m3	0.0000011
				Nickel	2.60E+02	mg/kg	1.5E-08	mg/m3	2.6E-04	(µg/m3)-1	4.0E-09	4.3E-08	mg/m3	9.0E-05	mg/m3	0.00047
				Thallium	1.60E+00	mg/kg	9.4E-11	mg/m3	NA	---	NA	2.6E-10	mg/m3	NA	---	NA
				Vanadium	3.49E+01	mg/kg	2.0E-09	mg/m3	1.5E-02	(µg/m3)-1	3.1E-08	5.7E-09	mg/m3	3.9E-06	mg/m3	0.0015
				Zinc	1.44E+04	mg/kg	8.5E-07	mg/m3	NA	---	NA	2.4E-06	mg/m3	NA	---	NA
			Inhalation Total								2.4E-07					0.0042
	Aggregate Soil Total										2.1E-05					0.36
Soil Total											2.1E-05					0.36
										Total of Receptor Risks Across All Media	2.1E-05				Total of Receptor Hazards Across All Media	0.36

TABLE A-7.2g-8 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Ingestion	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-08	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	1.7E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	2.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-08	1.6E-06	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	2.6E-09	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	4.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-08	3.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	9.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.7E-09	6.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	2.1E-04	mg/kg-day	NA	---	NA	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	0.015
				Antimony	4.07E+01	mg/kg	9.8E-07	mg/kg-day	NA	---	NA	6.8E-05	mg/kg-day	4.0E-04	mg/kg-day	0.17
				Arsenic	1.31E+01	mg/kg	3.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.7E-07	2.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.073
				Cadmium	3.60E+01	mg/kg	8.6E-07	mg/kg-day	NA	---	NA	6.1E-05	mg/kg-day	1.0E-03	mg/kg-day	0.061
				Chromium Total	3.92E+01	mg/kg	9.4E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.7E-07	6.6E-05	mg/kg-day	1.0E+00	mg/kg-day	0.000066
				Cobalt	9.65E+00	mg/kg	2.3E-07	mg/kg-day	NA	---	NA	1.6E-05	mg/kg-day	3.0E-04	mg/kg-day	0.054
				Iron	1.95E+04	mg/kg	4.7E-04	mg/kg-day	NA	---	NA	3.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.047
				Lead	2.32E+03	mg/kg	5.6E-05	mg/kg-day	NA	---	NA	3.9E-03	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	6.8E-06	mg/kg-day	NA	---	NA	4.7E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0068
				Mercury	2.04E+00	mg/kg	4.9E-08	mg/kg-day	NA	---	NA	3.4E-06	mg/kg-day	1.6E-04	mg/kg-day	0.021
				Nickel	2.60E+02	mg/kg	6.2E-06	mg/kg-day	NA	---	NA	4.4E-04	mg/kg-day	2.0E-02	mg/kg-day	0.022
				Thallium	1.60E+00	mg/kg	3.8E-08	mg/kg-day	NA	---	NA	2.7E-06	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	8.4E-07	mg/kg-day	NA	---	NA	5.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.01
				Zinc	1.44E+04	mg/kg	3.5E-04	mg/kg-day	NA	---	NA	2.4E-02	mg/kg-day	3.0E-01	mg/kg-day	0.081
			Ingestion Total								1.1E-06					0.56
			Dermal	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	6.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.5E-09	4.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	6.5E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-08	4.6E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	9.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.6E-09	6.3E-07	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	7.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-08	1.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	3.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-09	2.5E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	4.07E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	1.31E+01	mg/kg	2.8E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.2E-08	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0066
				Cadmium	3.60E+01	mg/kg	2.6E-09	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0073
				Chromium Total	3.92E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	9.65E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.95E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.32E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2g-8 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Dermal	Mercury	2.04E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	2.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.60E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.44E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.2E-07					0.014
			Inhalation	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	8.0E-10	mg/m3	1.1E-04	(µg/m3)-1	8.8E-11	5.6E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	8.5E-10	mg/m3	1.1E-03	(µg/m3)-1	9.4E-10	6.0E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	1.2E-09	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	8.3E-08	mg/m3	NA	---	NA
				Carbazole	1.10E-01	mg/kg	1.3E-10	mg/m3	NA	---	NA	9.4E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	2.4E-10	mg/m3	1.2E-03	(µg/m3)-1	2.9E-10	1.7E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	4.6E-10	mg/m3	1.1E-04	(µg/m3)-1	5.1E-11	3.2E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	1.1E-05	mg/m3	NA	---	NA	7.5E-04	mg/m3	5.0E-03	mg/m3	0.15
				Antimony	4.07E+01	mg/kg	5.0E-08	mg/m3	NA	---	NA	3.5E-06	mg/m3	NA	---	NA
				Arsenic	1.31E+01	mg/kg	1.6E-08	mg/m3	4.3E-03	(µg/m3)-1	6.9E-08	1.1E-06	mg/m3	1.5E-05	mg/m3	0.075
				Cadmium	3.60E+01	mg/kg	4.4E-08	mg/m3	1.8E-03	(µg/m3)-1	7.9E-08	3.1E-06	mg/m3	1.0E-05	mg/m3	0.31
				Chromium Total	3.92E+01	mg/kg	4.8E-08	mg/m3	8.4E-02	(µg/m3)-1	4.0E-06	3.4E-06	mg/m3	1.0E-04	mg/m3	0.034
				Cobalt	9.65E+00	mg/kg	1.2E-08	mg/m3	9.0E-03	(µg/m3)-1	1.1E-07	8.3E-07	mg/m3	6.0E-06	mg/m3	0.14
				Iron	1.95E+04	mg/kg	2.4E-05	mg/m3	NA	---	NA	1.7E-03	mg/m3	NA	---	NA
				Lead	2.32E+03	mg/kg	2.8E-06	mg/m3	NA	---	NA	2.0E-04	mg/m3	NA	---	NA
				Manganese	2.82E+02	mg/kg	3.4E-07	mg/m3	NA	---	NA	2.4E-05	mg/m3	5.0E-05	mg/m3	0.48
				Mercury	2.04E+00	mg/kg	2.5E-09	mg/m3	NA	---	NA	1.7E-07	mg/m3	3.0E-04	mg/m3	0.00058
				Nickel	2.60E+02	mg/kg	3.2E-07	mg/m3	2.6E-04	(µg/m3)-1	8.2E-08	2.2E-05	mg/m3	9.0E-05	mg/m3	0.25
				Thallium	1.60E+00	mg/kg	2.0E-09	mg/m3	NA	---	NA	1.4E-07	mg/m3	NA	---	NA
				Vanadium	3.49E+01	mg/kg	4.3E-08	mg/m3	1.5E-02	(µg/m3)-1	6.4E-07	3.0E-06	mg/m3	5.6E-05	mg/m3	0.053
				Zinc	1.44E+04	mg/kg	1.8E-05	mg/m3	NA	---	NA	1.2E-03	mg/m3	NA	---	NA
			Inhalation Total								5.0E-06					1.5
	Aggregate Soil Total										6.3E-06					2.1
Soil Total											6.3E-06					2.1
										Total of Receptor Risks Across All Media	6.3E-06				Total of Receptor Hazards Across All Media	2.1

TABLE A-7.1g-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area G	Ingestion	PAHs												
				Benzo(a)anthracene	8.10E-01	mg/kg	4.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-08	3.5E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.20E-01	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-07	3.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.30E-01	mg/kg	5.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.7E-08	4.0E-07	mg/kg-day	NA	---	NA
				Carbazole	1.30E-01	mg/kg	7.2E-09	mg/kg-day	NA	---	NA	5.6E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.50E-01	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-07	1.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	5.70E-01	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-08	2.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.08E+04	mg/kg	6.0E-04	mg/kg-day	NA	---	NA	4.6E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0046
				Antimony	4.07E+01	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	1.7E-05	mg/kg-day	4.0E-04	mg/kg-day	0.044
				Arsenic	2.07E+01	mg/kg	1.1E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.7E-06	8.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.030
				Cadmium	2.26E+01	mg/kg	1.2E-06	mg/kg-day	NA	---	NA	9.7E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0097
				Chromium Total	6.63E+01	mg/kg	3.7E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.8E-06	2.8E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0095
				Cobalt	1.37E+01	mg/kg	7.5E-07	mg/kg-day	NA	---	NA	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.020
				Iron	1.34E+04	mg/kg	7.4E-04	mg/kg-day	NA	---	NA	5.7E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0082
				Lead	2.96E+03	mg/kg	1.6E-04	mg/kg-day	NA	---	NA	1.3E-03	mg/kg-day	NA	---	NA
				Manganese	2.14E+02	mg/kg	1.2E-05	mg/kg-day	NA	---	NA	9.2E-05	mg/kg-day	7.0E-02	mg/kg-day	0.0013
				Mercury	1.20E+00	mg/kg	6.6E-08	mg/kg-day	NA	---	NA	5.1E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0032
				Nickel	4.30E+02	mg/kg	2.4E-05	mg/kg-day	NA	---	NA	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	0.0092
				Thallium	1.60E+00	mg/kg	8.8E-08	mg/kg-day	NA	---	NA	6.9E-07	mg/kg-day	NA	---	NA
				Vanadium	5.43E+01	mg/kg	3.0E-06	mg/kg-day	NA	---	NA	2.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0046
				Zinc	1.37E+04	mg/kg	7.5E-04	mg/kg-day	NA	---	NA	5.9E-03	mg/kg-day	3.0E-01	mg/kg-day	0.020
			Ingestion Total								4.1E-06					0.16
			Dermal	PAHs												
				Benzo(a)anthracene	8.10E-01	mg/kg	7.7E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.6E-09	6.0E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	9.20E-01	mg/kg	8.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.4E-08	6.8E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.30E-01	mg/kg	8.8E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.4E-09	6.8E-08	mg/kg-day	NA	---	NA
				Carbazole	1.30E-01	mg/kg	1.2E-09	mg/kg-day	NA	---	NA	9.6E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.50E-01	mg/kg	2.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.7E-08	1.8E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	5.70E-01	mg/kg	5.4E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-09	4.2E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.08E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	4.07E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	2.07E+01	mg/kg	4.5E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.8E-08	3.5E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0012
				Cadmium	2.26E+01	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00051
				Chromium Total	6.63E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	1.37E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.34E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.96E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.14E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.1g-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area G	Dermal	Mercury	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	4.30E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.60E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	5.43E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.37E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.6E-07					0.0017
			Inhalation	PAHs												
				Benzo(a)anthracene	8.10E-01	mg/kg	1.5E-11	mg/m3	1.1E-04	(µg/m3)-1	1.6E-12	1.2E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	9.20E-01	mg/kg	1.7E-11	mg/m3	1.1E-03	(µg/m3)-1	1.9E-11	1.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	9.30E-01	mg/kg	1.7E-11	mg/m3	1.1E-04	(µg/m3)-1	1.9E-12	1.3E-10	mg/m3	NA	---	NA
				Carbazole	1.30E-01	mg/kg	2.4E-12	mg/m3	NA	---	NA	1.9E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.50E-01	mg/kg	4.6E-12	mg/m3	1.2E-03	(µg/m3)-1	5.6E-12	3.6E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	5.70E-01	mg/kg	1.1E-11	mg/m3	1.1E-04	(µg/m3)-1	1.2E-12	8.2E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	1.08E+04	mg/kg	2.0E-07	mg/m3	NA	---	NA	1.6E-06	mg/m3	5.0E-03	mg/m3	0.00031
				Antimony	4.07E+01	mg/kg	7.5E-10	mg/m3	NA	---	NA	5.9E-09	mg/m3	NA	---	NA
				Arsenic	2.07E+01	mg/kg	3.8E-10	mg/m3	4.3E-03	(µg/m3)-1	1.6E-09	3.0E-09	mg/m3	1.5E-05	mg/m3	0.00020
				Cadmium	2.26E+01	mg/kg	4.2E-10	mg/m3	1.8E-03	(µg/m3)-1	7.5E-10	3.3E-09	mg/m3	1.0E-05	mg/m3	0.00033
				Chromium Total	6.63E+01	mg/kg	1.2E-09	mg/m3	8.4E-02	(µg/m3)-1	1.0E-07	9.5E-09	mg/m3	1.0E-04	mg/m3	0.000095
				Cobalt	1.37E+01	mg/kg	2.5E-10	mg/m3	9.0E-03	(µg/m3)-1	2.3E-09	2.0E-09	mg/m3	6.0E-06	mg/m3	0.00033
				Iron	1.34E+04	mg/kg	2.5E-07	mg/m3	NA	---	NA	1.9E-06	mg/m3	NA	---	NA
				Lead	2.96E+03	mg/kg	5.5E-08	mg/m3	NA	---	NA	4.3E-07	mg/m3	NA	---	NA
				Manganese	2.14E+02	mg/kg	4.0E-09	mg/m3	NA	---	NA	3.1E-08	mg/m3	5.0E-05	mg/m3	0.00062
				Mercury	1.20E+00	mg/kg	2.2E-11	mg/m3	NA	---	NA	1.7E-10	mg/m3	3.0E-04	mg/m3	0.00000058
				Nickel	4.30E+02	mg/kg	8.0E-09	mg/m3	2.6E-04	(µg/m3)-1	2.1E-09	6.2E-08	mg/m3	9.0E-05	mg/m3	0.00069
				Thallium	1.60E+00	mg/kg	3.0E-11	mg/m3	NA	---	NA	2.3E-10	mg/m3	NA	---	NA
				Vanadium	5.43E+01	mg/kg	1.0E-09	mg/m3	1.5E-02	(µg/m3)-1	1.5E-08	7.8E-09	mg/m3	3.9E-06	mg/m3	0.0020
				Zinc	1.37E+04	mg/kg	2.5E-07	mg/m3	NA	---	NA	2.0E-06	mg/m3	NA	---	NA
			Inhalation Total								1.2E-07					0.0046
	Surface Soil Total										4.4E-06					0.17
Soil Total											4.4E-06					0.17
										Total of Receptor Risks Across All Media	4.4E-06				Total of Receptor Hazards Across All Media	0.17

TABLE A-7.2g-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Ingestion	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	3.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-08	2.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.8E-07	3.0E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-08	4.1E-07	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	6.1E-09	mg/kg-day	NA	---	NA	4.7E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.8E-08	8.4E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-08	1.6E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	4.8E-04	mg/kg-day	NA	---	NA	3.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0038
				Antimony	4.07E+01	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	1.7E-05	mg/kg-day	4.0E-04	mg/kg-day	0.044
				Arsenic	1.31E+01	mg/kg	7.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-06	5.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.019
				Cadmium	3.60E+01	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	1.5E-05	mg/kg-day	1.0E-03	mg/kg-day	0.015
				Chromium Total	3.92E+01	mg/kg	2.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.1E-06	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0056
				Cobalt	9.65E+00	mg/kg	5.3E-07	mg/kg-day	NA	---	NA	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Iron	1.95E+04	mg/kg	1.1E-03	mg/kg-day	NA	---	NA	8.4E-03	mg/kg-day	7.0E-01	mg/kg-day	0.012
				Lead	2.32E+03	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	9.9E-04	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	1.6E-05	mg/kg-day	NA	---	NA	1.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0017
				Mercury	2.04E+00	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	8.8E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0055
				Nickel	2.60E+02	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	1.1E-04	mg/kg-day	2.0E-02	mg/kg-day	0.0056
				Thallium	1.60E+00	mg/kg	8.8E-08	mg/kg-day	NA	---	NA	6.9E-07	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	1.9E-06	mg/kg-day	NA	---	NA	1.5E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0030
				Zinc	1.44E+04	mg/kg	7.9E-04	mg/kg-day	NA	---	NA	6.2E-03	mg/kg-day	3.0E-01	mg/kg-day	0.021
			Ingestion Total								2.6E-06					0.15
			Dermal	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	6.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.5E-09	4.8E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	6.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-08	5.1E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	9.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.7E-09	7.1E-08	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	8.1E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-08	1.4E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	3.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-09	2.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	4.07E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	1.31E+01	mg/kg	2.9E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.3E-08	2.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00074
				Cadmium	3.60E+01	mg/kg	2.6E-09	mg/kg-day	NA	---	NA	2.0E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00082
				Chromium Total	3.92E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	9.65E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.95E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.32E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2g-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Dermal	Mercury	2.04E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	2.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.60E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.44E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.2E-07					0.0016
			Inhalation	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	1.2E-11	mg/m3	1.1E-04	(µg/m3)-1	1.3E-12	9.4E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	1.3E-11	mg/m3	1.1E-03	(µg/m3)-1	1.4E-11	1.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	1.8E-11	mg/m3	1.1E-04	(µg/m3)-1	2.0E-12	1.4E-10	mg/m3	NA	---	NA
				Carbazole	1.10E-01	mg/kg	2.0E-12	mg/m3	NA	---	NA	1.6E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	3.6E-12	mg/m3	1.2E-03	(µg/m3)-1	4.3E-12	2.8E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	7.0E-12	mg/m3	1.1E-04	(µg/m3)-1	7.7E-13	5.5E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	1.6E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00025
				Antimony	4.07E+01	mg/kg	7.5E-10	mg/m3	NA	---	NA	5.9E-09	mg/m3	NA	---	NA
				Arsenic	1.31E+01	mg/kg	2.4E-10	mg/m3	4.3E-03	(µg/m3)-1	1.0E-09	1.9E-09	mg/m3	1.5E-05	mg/m3	0.00013
				Cadmium	3.60E+01	mg/kg	6.7E-10	mg/m3	1.8E-03	(µg/m3)-1	1.2E-09	5.2E-09	mg/m3	1.0E-05	mg/m3	0.00052
				Chromium Total	3.92E+01	mg/kg	7.3E-10	mg/m3	8.4E-02	(µg/m3)-1	6.1E-08	5.7E-09	mg/m3	1.0E-04	mg/m3	0.000057
				Cobalt	9.65E+00	mg/kg	1.8E-10	mg/m3	9.0E-03	(µg/m3)-1	1.6E-09	1.4E-09	mg/m3	6.0E-06	mg/m3	0.00023
				Iron	1.95E+04	mg/kg	3.6E-07	mg/m3	NA	---	NA	2.8E-06	mg/m3	NA	---	NA
				Lead	2.32E+03	mg/kg	4.3E-08	mg/m3	NA	---	NA	3.3E-07	mg/m3	NA	---	NA
				Manganese	2.82E+02	mg/kg	5.2E-09	mg/m3	NA	---	NA	4.1E-08	mg/m3	5.0E-05	mg/m3	0.00081
				Mercury	2.04E+00	mg/kg	3.8E-11	mg/m3	NA	---	NA	2.9E-10	mg/m3	3.0E-04	mg/m3	0.00000098
				Nickel	2.60E+02	mg/kg	4.8E-09	mg/m3	2.6E-04	(µg/m3)-1	1.2E-09	3.7E-08	mg/m3	9.0E-05	mg/m3	0.00042
				Thallium	1.60E+00	mg/kg	3.0E-11	mg/m3	NA	---	NA	2.3E-10	mg/m3	NA	---	NA
				Vanadium	3.49E+01	mg/kg	6.5E-10	mg/m3	1.5E-02	(µg/m3)-1	9.7E-09	5.0E-09	mg/m3	3.9E-06	mg/m3	0.0013
				Zinc	1.44E+04	mg/kg	2.7E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
			Inhalation Total								7.6E-08					0.0037
	Aggregate Soil Total										2.8E-06					0.15
Soil Total											2.8E-06					0.15
										Total of Receptor Risks Across All Media	2.8E-06				Total of Receptor Hazards Across All Media	0.15

TABLE A-7.2g-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Ingestion	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	9.5E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.0E-10	6.7E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	1.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.4E-09	7.1E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	1.4E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.0E-09	9.9E-08	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	1.6E-10	mg/kg-day	NA	---	NA	1.1E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	2.8E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-09	2.0E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	5.5E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-10	3.9E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	8.9E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00089
				Antimony	4.07E+01	mg/kg	5.9E-08	mg/kg-day	NA	---	NA	4.1E-06	mg/kg-day	4.0E-04	mg/kg-day	0.010
				Arsenic	1.31E+01	mg/kg	1.9E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.9E-08	1.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0044
				Cadmium	3.60E+01	mg/kg	5.2E-08	mg/kg-day	NA	---	NA	3.7E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0037
				Chromium Total	3.92E+01	mg/kg	5.7E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.9E-08	4.0E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0013
				Cobalt	9.65E+00	mg/kg	1.4E-08	mg/kg-day	NA	---	NA	9.8E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0033
				Iron	1.95E+04	mg/kg	2.8E-05	mg/kg-day	NA	---	NA	2.0E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0028
				Lead	2.32E+03	mg/kg	3.4E-06	mg/kg-day	NA	---	NA	2.4E-04	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	4.1E-07	mg/kg-day	NA	---	NA	2.9E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00041
				Mercury	2.04E+00	mg/kg	3.0E-09	mg/kg-day	NA	---	NA	2.1E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0013
				Nickel	2.60E+02	mg/kg	3.8E-07	mg/kg-day	NA	---	NA	2.6E-05	mg/kg-day	2.0E-02	mg/kg-day	0.0013
				Thallium	1.60E+00	mg/kg	2.3E-09	mg/kg-day	NA	---	NA	1.6E-07	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	5.1E-08	mg/kg-day	NA	---	NA	3.6E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00070
				Zinc	1.44E+04	mg/kg	2.1E-05	mg/kg-day	NA	---	NA	1.5E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0049
			Ingestion Total								6.9E-08					0.035
			Dermal	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	4.1E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.0E-10	2.9E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	4.4E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.2E-09	3.1E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	6.0E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.4E-10	4.2E-08	mg/kg-day	NA	---	NA
				Carbazole	1.10E-01	mg/kg	6.9E-11	mg/kg-day	NA	---	NA	4.8E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	1.2E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.9E-10	8.5E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	2.4E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-10	1.7E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	4.07E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	1.31E+01	mg/kg	1.9E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.8E-09	1.3E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00044
				Cadmium	3.60E+01	mg/kg	1.7E-10	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00048
				Chromium Total	3.92E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	9.65E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.95E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	2.32E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.82E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA

TABLE A-7.2g-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Dermal	Mercury	2.04E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	2.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.60E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	3.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.44E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								7.8E-09					0.00092
			Inhalation	PAHs												
				Benzo(a)anthracene	6.55E-01	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	1.8E-11	1.1E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	7.00E-01	mg/kg	1.7E-10	mg/m3	1.1E-03	(µg/m3)-1	1.9E-10	1.2E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	9.68E-01	mg/kg	2.4E-10	mg/m3	1.1E-04	(µg/m3)-1	2.6E-11	1.7E-08	mg/m3	NA	---	NA
				Carbazole	1.10E-01	mg/kg	2.7E-11	mg/m3	NA	---	NA	1.9E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.95E-01	mg/kg	4.8E-11	mg/m3	1.2E-03	(µg/m3)-1	5.7E-11	3.3E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E-01	mg/kg	9.3E-11	mg/m3	1.1E-04	(µg/m3)-1	1.0E-11	6.5E-09	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.76E+03	mg/kg	2.1E-06	mg/m3	NA	---	NA	1.5E-04	mg/m3	5.0E-03	mg/m3	0.030
				Antimony	4.07E+01	mg/kg	9.9E-09	mg/m3	NA	---	NA	7.0E-07	mg/m3	NA	---	NA
				Arsenic	1.31E+01	mg/kg	3.2E-09	mg/m3	4.3E-03	(µg/m3)-1	1.4E-08	2.2E-07	mg/m3	1.5E-05	mg/m3	0.015
				Cadmium	3.60E+01	mg/kg	8.8E-09	mg/m3	1.8E-03	(µg/m3)-1	1.6E-08	6.2E-07	mg/m3	1.0E-05	mg/m3	0.062
				Chromium Total	3.92E+01	mg/kg	9.6E-09	mg/m3	8.4E-02	(µg/m3)-1	8.1E-07	6.7E-07	mg/m3	1.0E-04	mg/m3	0.0067
				Cobalt	9.65E+00	mg/kg	2.4E-09	mg/m3	9.0E-03	(µg/m3)-1	2.1E-08	1.7E-07	mg/m3	6.0E-06	mg/m3	0.028
				Iron	1.95E+04	mg/kg	4.8E-06	mg/m3	NA	---	NA	3.3E-04	mg/m3	NA	---	NA
				Lead	2.32E+03	mg/kg	5.7E-07	mg/m3	NA	---	NA	4.0E-05	mg/m3	NA	---	NA
				Manganese	2.82E+02	mg/kg	6.9E-08	mg/m3	NA	---	NA	4.8E-06	mg/m3	5.0E-05	mg/m3	0.096
				Mercury	2.04E+00	mg/kg	5.0E-10	mg/m3	NA	---	NA	3.5E-08	mg/m3	3.0E-04	mg/m3	0.00012
				Nickel	2.60E+02	mg/kg	6.3E-08	mg/m3	2.6E-04	(µg/m3)-1	1.6E-08	4.4E-06	mg/m3	9.0E-05	mg/m3	0.049
				Thallium	1.60E+00	mg/kg	3.9E-10	mg/m3	NA	---	NA	2.7E-08	mg/m3	NA	---	NA
				Vanadium	3.49E+01	mg/kg	8.5E-09	mg/m3	1.5E-02	(µg/m3)-1	1.3E-07	6.0E-07	mg/m3	5.6E-05	mg/m3	0.011
				Zinc	1.44E+04	mg/kg	3.5E-06	mg/m3	NA	---	NA	2.5E-04	mg/m3	NA	---	NA
			Inhalation Total								1.0E-06					0.30
	Aggregate Soil Total										1.1E-06					0.33
Soil Total											1.1E-06					0.33
										Total of Receptor Risks Across All Media	1.1E-06			Total of Receptor Hazards Across All Media		0.33

TABLE A-7.1h-6 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area H	Ingestion	Dimethyl phthalate	2.20E-02	mg/kg	7.7E-09	mg/kg-day	NA	---	NA	2.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.81E+00	mg/kg	9.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.2E-07	2.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.02E+00	mg/kg	1.1E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.7E-06	3.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	3.33E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.5E-07	3.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.49E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.9E-08	3.4E-06	mg/kg-day	NA	---	NA
				Carbazole	6.63E-01	mg/kg	2.3E-07	mg/kg-day	NA	---	NA	6.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	9.76E-01	mg/kg	3.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.5E-06	9.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	8.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.0E-07	2.3E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.23E+03	mg/kg	2.9E-03	mg/kg-day	NA	---	NA	8.0E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0080
				Arsenic	3.80E+00	mg/kg	1.3E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.0E-06	3.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.012
				Chromium Total	1.57E+01	mg/kg	5.5E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.7E-06	1.5E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0051
				Cobalt	5.50E+00	mg/kg	1.9E-06	mg/kg-day	NA	---	NA	5.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.018
				Iron	1.28E+04	mg/kg	4.5E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.018
				Manganese	3.09E+02	mg/kg	1.1E-04	mg/kg-day	NA	---	NA	3.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0043
				Thallium	1.43E+00	mg/kg	5.0E-07	mg/kg-day	NA	---	NA	1.4E-06	mg/kg-day	NA	---	NA
				Vanadium	4.62E+01	mg/kg	1.6E-05	mg/kg-day	NA	---	NA	4.5E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0090
			Ingestion Total								1.7E-05					0.075
			Dermal	Dimethyl phthalate	2.20E-02	mg/kg	5.1E-09	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.81E+00	mg/kg	8.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.1E-07	2.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.02E+00	mg/kg	9.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.6E-06	2.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	3.33E+00	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.3E-07	2.8E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.49E+00	mg/kg	1.0E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	7.6E-08	2.9E-06	mg/kg-day	NA	---	NA
				Carbazole	6.63E-01	mg/kg	2.0E-07	mg/kg-day	NA	---	NA	5.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	9.76E-01	mg/kg	2.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-06	8.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	7.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.2E-07	2.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.23E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.80E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.9E-07	7.4E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0025
				Chromium Total	1.57E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.50E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.28E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.09E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Thallium	1.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	4.62E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.1E-05					0.0025

TABLE A-7.1h-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area H	Inhalation	Dimethyl phthalate	2.20E-02	mg/kg	1.3E-12	mg/m3	NA	---	NA	3.6E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.81E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	1.8E-11	4.6E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.02E+00	mg/kg	1.8E-10	mg/m3	1.1E-03	(µg/m3)-1	1.9E-10	5.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	3.33E+00	mg/kg	2.0E-10	mg/m3	1.1E-04	(µg/m3)-1	2.2E-11	5.5E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	3.49E+00	mg/kg	2.1E-10	mg/m3	1.1E-04	(µg/m3)-1	2.3E-11	5.7E-10	mg/m3	NA	---	NA
				Carbazole	6.63E-01	mg/kg	3.9E-11	mg/m3	NA	---	NA	1.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	9.76E-01	mg/kg	5.7E-11	mg/m3	1.2E-03	(µg/m3)-1	6.9E-11	1.6E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-11	3.9E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.23E+03	mg/kg	4.8E-07	mg/m3	NA	---	NA	1.4E-06	mg/m3	5.0E-03	mg/m3	0.00027
				Arsenic	3.80E+00	mg/kg	2.2E-10	mg/m3	4.3E-03	(µg/m3)-1	9.6E-10	6.2E-10	mg/m3	1.5E-05	mg/m3	0.000042
				Chromium Total	1.57E+01	mg/kg	9.2E-10	mg/m3	8.4E-02	(µg/m3)-1	7.8E-08	2.6E-09	mg/m3	1.0E-04	mg/m3	0.000026
				Cobalt	5.50E+00	mg/kg	3.2E-10	mg/m3	9.0E-03	(µg/m3)-1	2.9E-09	9.0E-10	mg/m3	6.0E-06	mg/m3	0.00015
				Iron	1.28E+04	mg/kg	7.5E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
				Manganese	3.09E+02	mg/kg	1.8E-08	mg/m3	NA	---	NA	5.1E-08	mg/m3	5.0E-05	mg/m3	0.0010
				Thallium	1.43E+00	mg/kg	8.4E-11	mg/m3	NA	---	NA	2.4E-10	mg/m3	NA	---	NA
				Vanadium	4.62E+01	mg/kg	2.7E-09	mg/m3	1.5E-02	(µg/m3)-1	4.1E-08	7.6E-09	mg/m3	3.9E-06	mg/m3	0.0019
			Inhalation Total								1.2E-07					0.0034
	Surface Soil Total										2.8E-05					0.081
Soil Total											2.8E-05					0.081
										Total of Receptor Risks Across All Media	2.8E-05				Total of Receptor Hazards Across All Media	0.081

TABLE A-7.2h-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Ingestion	Dimethyl phthalate	2.20E-02	mg/kg	7.7E-09	mg/kg-day	NA	---	NA	2.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	5.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	1.9E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-05	5.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	2.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-06	6.0E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	1.1E-06	mg/kg-day	NA	---	NA	3.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	2.3E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.7E-07	6.4E-06	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	3.4E-07	mg/kg-day	NA	---	NA	9.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	5.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-06	1.4E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	9.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.8E-07	2.6E-06	mg/kg-day	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	3.5E-10	mg/kg-day	5.4E-01	(mg/kg-day)-1	1.9E-10	9.8E-10	mg/kg-day	1.0E-02	mg/kg-day	0.000000098
				Trichloroethene	2.00E-03	mg/kg	7.0E-10	mg/kg-day	5.9E-03	(mg/kg-day)-1	4.1E-12	2.0E-09	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	2.7E-03	mg/kg-day	NA	---	NA	7.6E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0076
				Arsenic	1.40E+01	mg/kg	4.9E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	7.3E-06	1.4E-05	mg/kg-day	3.0E-04	mg/kg-day	0.045
				Barium	1.93E+03	mg/kg	6.7E-04	mg/kg-day	NA	---	NA	1.9E-03	mg/kg-day	2.0E-01	mg/kg-day	0.0094
				Cadmium	4.87E+00	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	4.8E-06	mg/kg-day	1.00E-03	mg/kg-day	0.0048
				Chromium Total	1.73E+01	mg/kg	6.0E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.0E-06	1.7E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0056
				Cobalt	6.58E+00	mg/kg	2.3E-06	mg/kg-day	NA	---	NA	6.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.021
				Iron	1.38E+04	mg/kg	4.8E-03	mg/kg-day	NA	---	NA	1.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.019
				Lead	3.65E+03	mg/kg	1.3E-03	mg/kg-day	NA	---	NA	3.6E-03	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	1.0E-04	mg/kg-day	NA	---	NA	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0040
				Thallium	1.48E+00	mg/kg	5.2E-07	mg/kg-day	NA	---	NA	1.4E-06	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	5.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.010
				Zinc	8.82E+03	mg/kg	3.1E-03	mg/kg-day	NA	---	NA	8.6E-03	mg/kg-day	3.0E-01	mg/kg-day	0.029
			Ingestion Total								3.2E-05					0.16
			Dermal	Dimethyl phthalate	2.20E-02	mg/kg	5.1E-09	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	1.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	4.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	1.6E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-05	4.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	1.8E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-06	5.2E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	9.5E-07	mg/kg-day	NA	---	NA	2.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	1.9E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.4E-07	5.5E-06	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	2.9E-07	mg/kg-day	NA	---	NA	8.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	4.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.2E-06	1.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	8.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.9E-07	2.3E-06	mg/kg-day	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	NA	mg/kg-day	5.4E-01	(mg/kg-day)-1	NA	NA	mg/kg-day	1.0E-02	mg/kg-day	NA
				Trichloroethene	2.00E-03	mg/kg	NA	mg/kg-day	5.9E-03	(mg/kg-day)-1	NA	NA	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA

TABLE A-7.2h-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dermal	Arsenic	1.40E+01	mg/kg	9.7E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-06	2.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0090
				Barium	1.93E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.4E-02	mg/kg-day	NA
				Cadmium	4.87E+00	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	3.1E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0013
				Chromium Total	1.73E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.58E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.38E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.65E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Thallium	1.48E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	8.82E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								2.0E-05					0.010
			Inhalation	Dimethyl phthalate	2.20E-02	mg/kg	1.3E-12	mg/m3	NA	---	NA	3.6E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	3.1E-10	mg/m3	1.1E-04	(µg/m3)-1	3.4E-11	8.6E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	3.2E-10	mg/m3	1.1E-03	(µg/m3)-1	3.5E-10	8.9E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	3.6E-10	mg/m3	1.1E-04	(µg/m3)-1	4.0E-11	1.0E-09	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	1.9E-10	mg/m3	NA	---	NA	5.2E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	3.8E-10	mg/m3	1.1E-04	(µg/m3)-1	4.2E-11	1.1E-09	mg/m3	NA	---	NA
				Carbazole	9.79E-01	mg/kg	5.7E-11	mg/m3	NA	---	NA	1.6E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	8.6E-11	mg/m3	1.2E-03	(µg/m3)-1	1.0E-10	2.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	1.7E-11	4.4E-10	mg/m3	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	2.1E-09	mg/m3	5.9E-06	(µg/m3)-1	1.2E-11	5.8E-09	mg/m3	2.7E-01	mg/m3	0.000000022
				Trichloroethene	2.00E-03	mg/kg	4.4E-09	mg/m3	2.0E-06	(µg/m3)-1	8.8E-12	1.2E-08	mg/m3	1.0E-02	mg/m3	0.0000012
				Metals												
				Aluminum	7.74E+03	mg/kg	4.5E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00025
				Arsenic	1.40E+01	mg/kg	8.2E-10	mg/m3	4.3E-03	(µg/m3)-1	3.5E-09	2.3E-09	mg/m3	1.5E-05	mg/m3	0.00015
				Barium	1.93E+03	mg/kg	1.1E-07	mg/m3	NA	---	NA	3.2E-07	mg/m3	5.0E-04	mg/m3	0.00063
				Cadmium	4.87E+00	mg/kg	2.9E-10	mg/m3	1.8E-03	(µg/m3)-1	5.1E-10	8.0E-10	mg/m3	1.0E-05	mg/m3	0.000080
				Chromium Total	1.73E+01	mg/kg	1.0E-09	mg/m3	8.4E-02	(µg/m3)-1	8.5E-08	2.8E-09	mg/m3	1.0E-04	mg/m3	0.000028
				Cobalt	6.58E+00	mg/kg	3.9E-10	mg/m3	9.0E-03	(µg/m3)-1	3.5E-09	1.1E-09	mg/m3	6.0E-06	mg/m3	0.00018
				Iron	1.38E+04	mg/kg	8.1E-07	mg/m3	NA	---	NA	2.3E-06	mg/m3	NA	---	NA
				Lead	3.65E+03	mg/kg	2.1E-07	mg/m3	NA	---	NA	6.0E-07	mg/m3	NA	---	NA
				Manganese	2.88E+02	mg/kg	1.7E-08	mg/m3	NA	---	NA	4.7E-08	mg/m3	5.0E-05	mg/m3	0.00095
				Thallium	1.48E+00	mg/kg	8.7E-11	mg/m3	NA	---	NA	2.4E-10	mg/m3	NA	---	NA
				Vanadium	5.32E+01	mg/kg	3.1E-09	mg/m3	1.5E-02	(µg/m3)-1	4.7E-08	8.7E-09	mg/m3	3.9E-06	mg/m3	0.0022
				Zinc	8.82E+03	mg/kg	5.2E-07	mg/m3	NA	---	NA	1.4E-06	mg/m3	NA	---	NA
			Inhalation Total								1.4E-07					0.0045
	Aggregate Soil Total										5.1E-05					0.17
Soil Total											5.1E-05					0.17
										Total of Receptor Risks Across All Media	5.1E-05				Total of Receptor Hazards Across All Media	0.17

TABLE A-7.2h-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Ingestion	Dimethyl phthalate	2.20E-02	mg/kg	5.3E-10	mg/kg-day	NA	---	NA	3.7E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.1E-08	8.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.5E-07	9.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-07	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	7.6E-08	mg/kg-day	NA	---	NA	5.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.1E-08	1.1E-05	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	2.3E-08	mg/kg-day	NA	---	NA	1.6E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.6E-07	2.5E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	6.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.7E-08	4.5E-06	mg/kg-day	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	2.4E-11	mg/kg-day	5.4E-01	(mg/kg-day)-1	1.3E-11	1.7E-09	mg/kg-day	1.0E-02	mg/kg-day	0.00000017
				Trichloroethene	2.00E-03	mg/kg	4.8E-11	mg/kg-day	5.9E-03	(mg/kg-day)-1	2.8E-13	3.4E-09	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	1.9E-04	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	1.0E+00	mg/kg-day	0.013
				Arsenic	1.40E+01	mg/kg	3.3E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.0E-07	2.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.078
				Barium	1.93E+03	mg/kg	4.6E-05	mg/kg-day	NA	---	NA	3.2E-03	mg/kg-day	2.0E-01	mg/kg-day	0.016
				Cadmium	4.87E+00	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	8.2E-06	mg/kg-day	1.00E-03	mg/kg-day	0.0082
				Chromium Total	1.73E+01	mg/kg	4.1E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.1E-07	2.9E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0097
				Cobalt	6.58E+00	mg/kg	1.6E-07	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.037
				Iron	1.38E+04	mg/kg	3.3E-04	mg/kg-day	NA	---	NA	2.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.033
				Lead	3.65E+03	mg/kg	8.8E-05	mg/kg-day	NA	---	NA	6.1E-03	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	6.9E-06	mg/kg-day	NA	---	NA	4.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0069
				Thallium	1.48E+00	mg/kg	3.5E-08	mg/kg-day	NA	---	NA	2.5E-06	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	1.3E-06	mg/kg-day	NA	---	NA	8.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.018
				Zinc	8.82E+03	mg/kg	2.1E-04	mg/kg-day	NA	---	NA	1.5E-02	mg/kg-day	3.0E-01	mg/kg-day	0.049
			Ingestion Total								2.2E-06					0.27
			Dermal	Dimethyl phthalate	2.20E-02	mg/kg	1.6E-10	mg/kg-day	NA	---	NA	1.1E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-08	3.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	5.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-07	3.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.2E-08	4.0E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	3.0E-08	mg/kg-day	NA	---	NA	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.4E-09	4.3E-06	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	9.2E-09	mg/kg-day	NA	---	NA	6.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-07	9.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-08	1.8E-06	mg/kg-day	NA	---	NA

TABLE A-7.2h-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dermal	Tetrachloroethene	1.00E-03	mg/kg	NA	mg/kg-day	5.4E-01	(mg/kg-day)-1	NA	NA	mg/kg-day	1.0E-02	mg/kg-day	NA
				Trichloroethene	2.00E-03	mg/kg	NA	mg/kg-day	5.9E-03	(mg/kg-day)-1	NA	NA	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	1.40E+01	mg/kg	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.5E-08	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0070
				Barium	1.93E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.4E-02	mg/kg-day	NA
				Cadmium	4.87E+00	mg/kg	3.5E-10	mg/kg-day	NA	---	NA	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00098
				Chromium Total	1.73E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.58E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.38E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.65E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Thallium	1.48E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	8.82E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								6.1E-07					0.0080
			Inhalation	Dimethyl phthalate	2.20E-02	mg/kg	2.7E-11	mg/m3	NA	---	NA	1.9E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	6.4E-09	mg/m3	1.1E-04	(µg/m3)-1	7.0E-10	4.5E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	6.6E-09	mg/m3	1.1E-03	(µg/m3)-1	7.2E-09	4.6E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	7.5E-09	mg/m3	1.1E-04	(µg/m3)-1	8.3E-10	5.3E-07	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	3.9E-09	mg/m3	NA	---	NA	2.7E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	7.9E-09	mg/m3	1.1E-04	(µg/m3)-1	8.7E-10	5.6E-07	mg/m3	NA	---	NA
				Carbazole	9.79E-01	mg/kg	1.2E-09	mg/m3	NA	---	NA	8.4E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	1.8E-09	mg/m3	1.2E-03	(µg/m3)-1	2.1E-09	1.2E-07	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	3.3E-09	mg/m3	1.1E-04	(µg/m3)-1	3.6E-10	2.3E-07	mg/m3	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	4.3E-11	mg/m3	5.9E-06	(µg/m3)-1	2.6E-13	3.0E-09	mg/m3	2.7E-01	mg/m3	0.000000011
				Trichloroethene	2.00E-03	mg/kg	9.1E-11	mg/m3	2.0E-06	(µg/m3)-1	1.8E-13	6.4E-09	mg/m3	1.0E-02	mg/m3	0.00000064
				Metals												
				Aluminum	7.74E+03	mg/kg	9.4E-06	mg/m3	NA	---	NA	6.6E-04	mg/m3	5.0E-03	mg/m3	0.13
				Arsenic	1.40E+01	mg/kg	1.7E-08	mg/m3	4.3E-03	(µg/m3)-1	7.3E-08	1.2E-06	mg/m3	1.5E-05	mg/m3	0.079
				Barium	1.93E+03	mg/kg	2.4E-06	mg/m3	NA	---	NA	1.6E-04	mg/m3	5.0E-04	mg/m3	0.33
				Cadmium	4.87E+00	mg/kg	5.9E-09	mg/m3	1.8E-03	(µg/m3)-1	1.1E-08	4.2E-07	mg/m3	1.0E-05	mg/m3	0.042
				Chromium Total	1.73E+01	mg/kg	2.1E-08	mg/m3	8.4E-02	(µg/m3)-1	1.8E-06	1.5E-06	mg/m3	1.0E-04	mg/m3	0.015
				Cobalt	6.58E+00	mg/kg	8.0E-09	mg/m3	9.0E-03	(µg/m3)-1	7.2E-08	5.6E-07	mg/m3	6.0E-06	mg/m3	0.094
				Iron	1.38E+04	mg/kg	1.7E-05	mg/m3	NA	---	NA	1.2E-03	mg/m3	NA	---	NA

TABLE A-7.2h-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Inhalation	Lead	3.65E+03	mg/kg	4.5E-06	mg/m3	NA	---	NA	3.1E-04	mg/m3	NA	---	NA
				Manganese	2.88E+02	mg/kg	3.5E-07	mg/m3	NA	---	NA	2.5E-05	mg/m3	5.0E-05	mg/m3	0.49
				Thallium	1.48E+00	mg/kg	1.8E-09	mg/m3	NA	---	NA	1.3E-07	mg/m3	NA	---	NA
				Vanadium	5.32E+01	mg/kg	6.5E-08	mg/m3	1.5E-02	(µg/m3)-1	9.7E-07	4.5E-06	mg/m3	5.6E-05	mg/m3	0.081
				Zinc	8.82E+03	mg/kg	1.1E-05	mg/m3	NA	---	NA	7.5E-04	mg/m3	NA	---	NA
			Inhalation Total								2.9E-06					1.3
	Aggregate Soil Total										5.7E-06					1.5
Soil Total											5.7E-06					1.5
										Total of Receptor Risks Across All Media	5.7E-06			Total of Receptor Hazards Across All Media		1.5

TABLE A-7.1h-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area H	Ingestion	Dimethyl phthalate	2.20E-02	mg/kg	1.2E-09	mg/kg-day	NA	---	NA	9.4E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.81E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.02E+00	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-06	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	3.33E+00	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.49E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.4E-08	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	6.63E-01	mg/kg	3.7E-08	mg/kg-day	NA	---	NA	2.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	9.76E-01	mg/kg	5.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.9E-07	4.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.5E-08	1.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.23E+03	mg/kg	4.5E-04	mg/kg-day	NA	---	NA	3.5E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0035
				Arsenic	3.80E+00	mg/kg	2.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.1E-07	1.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0054
				Chromium Total	1.57E+01	mg/kg	8.7E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.3E-07	6.7E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0022
				Cobalt	5.50E+00	mg/kg	3.0E-07	mg/kg-day	NA	---	NA	2.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0079
				Iron	1.28E+04	mg/kg	7.0E-04	mg/kg-day	NA	---	NA	5.5E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0078
				Manganese	3.09E+02	mg/kg	1.7E-05	mg/kg-day	NA	---	NA	1.3E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0019
				Thallium	1.43E+00	mg/kg	7.9E-08	mg/kg-day	NA	---	NA	6.1E-07	mg/kg-day	NA	---	NA
				Vanadium	4.62E+01	mg/kg	2.5E-06	mg/kg-day	NA	---	NA	2.0E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0039
			Ingestion Total								2.7E-06					0.033
			Dermal	Dimethyl phthalate	2.20E-02	mg/kg	1.6E-10	mg/kg-day	NA	---	NA	1.2E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.81E+00	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-08	2.1E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	3.02E+00	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-07	2.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	3.33E+00	mg/kg	3.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-08	2.5E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.49E+00	mg/kg	3.3E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.4E-09	2.6E-07	mg/kg-day	NA	---	NA
				Carbazole	6.63E-01	mg/kg	6.3E-09	mg/kg-day	NA	---	NA	4.9E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	9.76E-01	mg/kg	9.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.7E-08	7.2E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-08	1.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.23E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	3.80E+00	mg/kg	8.3E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-08	6.5E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00022
				Chromium Total	1.57E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	5.50E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.28E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Manganese	3.09E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Thallium	1.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	4.62E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								3.5E-07					0.00022
			Inhalation	Dimethyl phthalate	2.20E-02	mg/kg	4.1E-13	mg/m3	NA	---	NA	3.2E-12	mg/m3	NA	---	NA
				PAHs												

TABLE A-7.1h-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area H	Inhalation	Benzo(a)anthracene	2.81E+00	mg/kg	5.2E-11	mg/m3	1.1E-04	(µg/m3)-1	5.7E-12	4.0E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	3.02E+00	mg/kg	5.6E-11	mg/m3	1.1E-03	(µg/m3)-1	6.1E-11	4.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	3.33E+00	mg/kg	6.2E-11	mg/m3	1.1E-04	(µg/m3)-1	6.8E-12	4.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	3.49E+00	mg/kg	6.5E-11	mg/m3	1.1E-04	(µg/m3)-1	7.1E-12	5.0E-10	mg/m3	NA	---	NA
				Carbazole	6.63E-01	mg/kg	1.2E-11	mg/m3	NA	---	NA	9.5E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	9.76E-01	mg/kg	1.8E-11	mg/m3	1.2E-03	(µg/m3)-1	2.2E-11	1.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.37E+00	mg/kg	4.4E-11	mg/m3	1.1E-04	(µg/m3)-1	4.8E-12	3.4E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.23E+03	mg/kg	1.5E-07	mg/m3	NA	---	NA	1.2E-06	mg/m3	5.0E-03	mg/m3	0.00024
				Arsenic	3.80E+00	mg/kg	7.0E-11	mg/m3	4.3E-03	(µg/m3)-1	3.0E-10	5.5E-10	mg/m3	1.5E-05	mg/m3	0.000036
				Chromium Total	1.57E+01	mg/kg	2.9E-10	mg/m3	8.4E-02	(µg/m3)-1	2.4E-08	2.3E-09	mg/m3	1.0E-04	mg/m3	0.000023
				Cobalt	5.50E+00	mg/kg	1.0E-10	mg/m3	9.0E-03	(µg/m3)-1	9.2E-10	7.9E-10	mg/m3	6.0E-06	mg/m3	0.00013
				Iron	1.28E+04	mg/kg	2.4E-07	mg/m3	NA	---	NA	1.8E-06	mg/m3	NA	---	NA
				Manganese	3.09E+02	mg/kg	5.7E-09	mg/m3	NA	---	NA	4.5E-08	mg/m3	5.0E-05	mg/m3	0.00089
				Thallium	1.43E+00	mg/kg	2.7E-11	mg/m3	NA	---	NA	2.1E-10	mg/m3	NA	---	NA
				Vanadium	4.62E+01	mg/kg	8.6E-10	mg/m3	1.5E-02	(µg/m3)-1	1.3E-08	6.7E-09	mg/m3	3.9E-06	mg/m3	0.0017
			Inhalation Total								3.9E-08					0.0030
	Surface Soil Total										3.1E-06					0.036
Soil Total											3.1E-06					0.036
										Total of Receptor Risks Across All Media	3.1E-06				Total of Receptor Hazards Across All Media	0.036

TABLE A-7.2h-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Ingestion	Dimethyl phthalate	2.20E-02	mg/kg	1.2E-09	mg/kg-day	NA	---	NA	9.4E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	3.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.2E-06	2.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	3.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-07	2.6E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	1.7E-07	mg/kg-day	NA	---	NA	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.6E-08	2.8E-06	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	5.4E-08	mg/kg-day	NA	---	NA	4.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	8.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.9E-07	6.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	1.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-07	1.2E-06	mg/kg-day	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	5.5E-11	mg/kg-day	5.4E-01	(mg/kg-day)-1	3.0E-11	4.3E-10	mg/kg-day	1.0E-02	mg/kg-day	0.000000043
				Trichloroethene	2.00E-03	mg/kg	1.1E-10	mg/kg-day	5.9E-03	(mg/kg-day)-1	6.5E-13	8.6E-10	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	4.3E-04	mg/kg-day	NA	---	NA	3.3E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0033
				Arsenic	1.40E+01	mg/kg	7.7E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.2E-06	6.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.020
				Barium	1.93E+03	mg/kg	1.1E-04	mg/kg-day	NA	---	NA	8.3E-04	mg/kg-day	2.0E-01	mg/kg-day	0.0041
				Cadmium	4.87E+00	mg/kg	2.7E-07	mg/kg-day	NA	---	NA	2.1E-06	mg/kg-day	1.00E-03	mg/kg-day	0.0021
				Chromium Total	1.73E+01	mg/kg	9.5E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.8E-07	7.4E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0025
				Cobalt	6.58E+00	mg/kg	3.6E-07	mg/kg-day	NA	---	NA	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0094
				Iron	1.38E+04	mg/kg	7.6E-04	mg/kg-day	NA	---	NA	5.9E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0084
				Lead	3.65E+03	mg/kg	2.0E-04	mg/kg-day	NA	---	NA	1.6E-03	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	1.6E-05	mg/kg-day	NA	---	NA	1.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0018
				Thallium	1.48E+00	mg/kg	8.1E-08	mg/kg-day	NA	---	NA	6.3E-07	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	2.9E-06	mg/kg-day	NA	---	NA	2.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0045
				Zinc	8.82E+03	mg/kg	4.9E-04	mg/kg-day	NA	---	NA	3.8E-03	mg/kg-day	3.0E-01	mg/kg-day	0.013
			Ingestion Total								5.0E-06					0.069
			Dermal	Dimethyl phthalate	2.20E-02	mg/kg	1.6E-10	mg/kg-day	NA	---	NA	1.2E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	4.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-08	3.8E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	5.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.7E-07	4.0E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	5.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.2E-08	4.5E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	3.0E-08	mg/kg-day	NA	---	NA	2.3E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.5E-09	4.8E-07	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	9.3E-09	mg/kg-day	NA	---	NA	7.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-07	1.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-08	2.0E-07	mg/kg-day	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	NA	mg/kg-day	5.4E-01	(mg/kg-day)-1	NA	NA	mg/kg-day	1.0E-02	mg/kg-day	NA
				Trichloroethene	2.00E-03	mg/kg	NA	mg/kg-day	5.9E-03	(mg/kg-day)-1	NA	NA	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA

TABLE A-7.2h-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dermal	Arsenic	1.40E+01	mg/kg	3.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.6E-08	2.4E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00079
				Barium	1.93E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.4E-02	mg/kg-day	NA
				Cadmium	4.87E+00	mg/kg	3.5E-10	mg/kg-day	NA	---	NA	2.8E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00011
				Chromium Total	1.73E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.58E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.38E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.65E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Thallium	1.48E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	8.82E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								6.2E-07					0.00090
			Inhalation	Dimethyl phthalate	2.20E-02	mg/kg	4.1E-13	mg/m3	NA	---	NA	3.2E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	9.6E-11	mg/m3	1.1E-04	(µg/m3)-1	1.1E-11	7.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	1.0E-10	mg/m3	1.1E-03	(µg/m3)-1	1.1E-10	7.8E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	1.1E-10	mg/m3	1.1E-04	(µg/m3)-1	1.3E-11	8.8E-10	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	5.8E-11	mg/m3	NA	---	NA	4.5E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	1.2E-10	mg/m3	1.1E-04	(µg/m3)-1	1.3E-11	9.4E-10	mg/m3	NA	---	NA
				Carbazole	9.79E-01	mg/kg	1.8E-11	mg/m3	NA	---	NA	1.4E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	2.7E-11	mg/m3	1.2E-03	(µg/m3)-1	3.2E-11	2.1E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	5.0E-11	mg/m3	1.1E-04	(µg/m3)-1	5.5E-12	3.9E-10	mg/m3	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	1.1E-09	mg/m3	5.9E-06	(µg/m3)-1	6.5E-12	8.5E-09	mg/m3	2.7E-01	mg/m3	0.000000032
				Trichloroethene	2.00E-03	mg/kg	2.3E-09	mg/m3	2.0E-06	(µg/m3)-1	4.6E-12	1.8E-08	mg/m3	1.0E-02	mg/m3	0.0000018
				Metals												
				Aluminum	7.74E+03	mg/kg	1.4E-07	mg/m3	NA	---	NA	1.1E-06	mg/m3	5.0E-03	mg/m3	0.00022
				Arsenic	1.40E+01	mg/kg	2.6E-10	mg/m3	4.3E-03	(µg/m3)-1	1.1E-09	2.0E-09	mg/m3	1.5E-05	mg/m3	0.00013
				Barium	1.93E+03	mg/kg	3.6E-08	mg/m3	NA	---	NA	2.8E-07	mg/m3	5.0E-04	mg/m3	0.00056
				Cadmium	4.87E+00	mg/kg	9.0E-11	mg/m3	1.8E-03	(µg/m3)-1	1.6E-10	7.0E-10	mg/m3	1.0E-05	mg/m3	0.000070
				Chromium Total	1.73E+01	mg/kg	3.2E-10	mg/m3	8.4E-02	(µg/m3)-1	2.7E-08	2.5E-09	mg/m3	1.0E-04	mg/m3	0.000025
				Cobalt	6.58E+00	mg/kg	1.2E-10	mg/m3	9.0E-03	(µg/m3)-1	1.1E-09	9.5E-10	mg/m3	6.0E-06	mg/m3	0.00016
				Iron	1.38E+04	mg/kg	2.6E-07	mg/m3	NA	---	NA	2.0E-06	mg/m3	NA	---	NA
				Lead	3.65E+03	mg/kg	6.8E-08	mg/m3	NA	---	NA	5.3E-07	mg/m3	NA	---	NA
				Manganese	2.88E+02	mg/kg	5.3E-09	mg/m3	NA	---	NA	4.1E-08	mg/m3	5.0E-05	mg/m3	0.00083
				Thallium	1.48E+00	mg/kg	2.7E-11	mg/m3	NA	---	NA	2.1E-10	mg/m3	NA	---	NA
				Vanadium	5.32E+01	mg/kg	9.8E-10	mg/m3	1.5E-02	(µg/m3)-1	1.5E-08	7.7E-09	mg/m3	3.9E-06	mg/m3	0.0020
				Zinc	8.82E+03	mg/kg	1.6E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	NA	---	NA
			Inhalation Total								4.4E-08					0.0039
	Aggregate Soil Total										5.6E-06					0.074

TABLE A-7.2h-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil Total											5.6E-06					0.074
Total of Receptor Risks Across All Media											5.6E-06	Total of Receptor Hazards Across All Media				0.074

TABLE A-7.2h-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Ingestion	Dimethyl phthalate	2.20E-02	mg/kg	3.2E-11	mg/kg-day	NA	---	NA	2.2E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	7.6E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.5E-09	5.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	7.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.7E-08	5.5E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	8.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.5E-09	6.3E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	4.6E-09	mg/kg-day	NA	---	NA	3.2E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	9.4E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.9E-10	6.6E-07	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	1.4E-09	mg/kg-day	NA	---	NA	1.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	2.1E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.5E-08	1.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	3.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-09	2.7E-07	mg/kg-day	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	1.5E-12	mg/kg-day	5.4E-01	(mg/kg-day)-1	7.9E-13	1.0E-10	mg/kg-day	1.0E-02	mg/kg-day	0.000000010
				Trichloroethene	2.00E-03	mg/kg	2.9E-12	mg/kg-day	5.9E-03	(mg/kg-day)-1	1.7E-14	2.0E-10	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00079
				Arsenic	1.40E+01	mg/kg	2.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.0E-08	1.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0047
				Barium	1.93E+03	mg/kg	2.8E-06	mg/kg-day	NA	---	NA	2.0E-04	mg/kg-day	2.0E-01	mg/kg-day	0.00098
				Cadmium	4.87E+00	mg/kg	7.1E-09	mg/kg-day	NA	---	NA	5.0E-07	mg/kg-day	1.00E-03	mg/kg-day	0.00050
				Chromiuim Total	1.73E+01	mg/kg	2.5E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.3E-08	1.8E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00059
				Cobalt	6.58E+00	mg/kg	9.6E-09	mg/kg-day	NA	---	NA	6.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0022
				Iron	1.38E+04	mg/kg	2.0E-05	mg/kg-day	NA	---	NA	1.4E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0020
				Lead	3.65E+03	mg/kg	5.3E-06	mg/kg-day	NA	---	NA	3.7E-04	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	4.2E-07	mg/kg-day	NA	---	NA	2.9E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00042
				Thallium	1.48E+00	mg/kg	2.1E-09	mg/kg-day	NA	---	NA	1.5E-07	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	7.7E-08	mg/kg-day	NA	---	NA	5.4E-06	mg/kg-day	5.0E-03	mg/kg-day	0.0011
				Zinc	8.82E+03	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	9.0E-04	mg/kg-day	3.0E-01	mg/kg-day	0.0030
			Ingestion Total								1.3E-07					0.016
			Dermal	Dimethyl phthalate	2.20E-02	mg/kg	1.1E-11	mg/kg-day	NA	---	NA	7.4E-10	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	3.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-09	2.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	3.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.5E-08	2.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	3.8E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-09	2.7E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	2.0E-09	mg/kg-day	NA	---	NA	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	4.0E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.0E-10	2.8E-07	mg/kg-day	NA	---	NA
				Carbazole	9.79E-01	mg/kg	6.1E-10	mg/kg-day	NA	---	NA	4.3E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	9.1E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.6E-09	6.4E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	1.7E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-09	1.2E-07	mg/kg-day	NA	---	NA

TABLE A-7.2h-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dermal	Tetrachloroethene	1.00E-03	mg/kg	NA	mg/kg-day	5.4E-01	(mg/kg-day)-1	NA	NA	mg/kg-day	1.0E-02	mg/kg-day	NA
				Trichloroethene	2.00E-03	mg/kg	NA	mg/kg-day	5.9E-03	(mg/kg-day)-1	NA	NA	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	7.74E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	1.40E+01	mg/kg	2.0E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.0E-09	1.4E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00047
				Barium	1.93E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.4E-02	mg/kg-day	NA
				Cadmium	4.87E+00	mg/kg	2.3E-11	mg/kg-day	NA	---	NA	1.6E-09	mg/kg-day	2.5E-05	mg/kg-day	0.000065
				Chromiuim Total	1.73E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.58E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.38E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.65E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.88E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Thallium	1.48E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	5.32E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	8.82E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								4.1E-08					0.00053
			Inhalation	Dimethyl phthalate	2.20E-02	mg/kg	5.4E-12	mg/m3	NA	---	NA	3.8E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.21E+00	mg/kg	1.3E-09	mg/m3	1.1E-04	(µg/m3)-1	1.4E-10	8.9E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	5.40E+00	mg/kg	1.3E-09	mg/m3	1.1E-03	(µg/m3)-1	1.4E-09	9.2E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	6.15E+00	mg/kg	1.5E-09	mg/m3	1.1E-04	(µg/m3)-1	1.7E-10	1.1E-07	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.16E+00	mg/kg	7.7E-10	mg/m3	NA	---	NA	5.4E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	6.49E+00	mg/kg	1.6E-09	mg/m3	1.1E-04	(µg/m3)-1	1.7E-10	1.1E-07	mg/m3	NA	---	NA
				Carbazole	9.79E-01	mg/kg	2.4E-10	mg/m3	NA	---	NA	1.7E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.46E+00	mg/kg	3.6E-10	mg/m3	1.2E-03	(µg/m3)-1	4.3E-10	2.5E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	2.68E+00	mg/kg	6.6E-10	mg/m3	1.1E-04	(µg/m3)-1	7.2E-11	4.6E-08	mg/m3	NA	---	NA
				Tetrachloroethene	1.00E-03	mg/kg	1.4E-11	mg/m3	5.9E-06	(µg/m3)-1	8.5E-14	1.0E-09	mg/m3	2.7E-01	mg/m3	0.0000000037
				Trichloroethene	2.00E-03	mg/kg	3.0E-11	mg/m3	2.0E-06	(µg/m3)-1	6.1E-14	2.1E-09	mg/m3	1.0E-02	mg/m3	0.00000021
				Metals												
				Aluminum	7.74E+03	mg/kg	1.9E-06	mg/m3	NA	---	NA	1.3E-04	mg/m3	5.0E-03	mg/m3	0.026
				Arsenic	1.40E+01	mg/kg	3.4E-09	mg/m3	4.3E-03	(µg/m3)-1	1.5E-08	2.4E-07	mg/m3	1.5E-05	mg/m3	0.016
				Barium	1.93E+03	mg/kg	4.7E-07	mg/m3	NA	---	NA	3.3E-05	mg/m3	5.0E-04	mg/m3	0.066
				Cadmium	4.87E+00	mg/kg	1.2E-09	mg/m3	1.8E-03	(µg/m3)-1	2.1E-09	8.3E-08	mg/m3	1.0E-05	mg/m3	0.0083
				Chromiuim Total	1.73E+01	mg/kg	4.2E-09	mg/m3	8.4E-02	(µg/m3)-1	3.5E-07	3.0E-07	mg/m3	1.0E-04	mg/m3	0.0030
				Cobalt	6.58E+00	mg/kg	1.6E-09	mg/m3	9.0E-03	(µg/m3)-1	1.4E-08	1.1E-07	mg/m3	6.0E-06	mg/m3	0.019
				Iron	1.38E+04	mg/kg	3.4E-06	mg/m3	NA	---	NA	2.4E-04	mg/m3	NA	---	NA

TABLE A-7.2h-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Inhalation	Lead	3.65E+03	mg/kg	8.9E-07	mg/m3	NA	---	NA	6.2E-05	mg/m3	NA	---	NA
				Manganese	2.88E+02	mg/kg	7.0E-08	mg/m3	NA	---	NA	4.9E-06	mg/m3	5.0E-05	mg/m3	0.098
				Thallium	1.48E+00	mg/kg	3.6E-10	mg/m3	NA	---	NA	2.5E-08	mg/m3	NA	---	NA
				Vanadium	5.32E+01	mg/kg	1.3E-08	mg/m3	1.5E-02	(µg/m3)-1	1.9E-07	9.1E-07	mg/m3	5.6E-05	mg/m3	0.016
				Zinc	8.82E+03	mg/kg	2.2E-06	mg/m3	NA	---	NA	1.5E-04	mg/m3	NA	---	NA
			Inhalation Total								5.8E-07					0.25
	Aggregate Soil Total										7.6E-07					0.27
Soil Total											7.6E-07					0.27
										Total of Receptor Risks Across All Media	7.6E-07				Total of Receptor Hazards Across All Media	0.27

TABLE A-7.1i-6 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area I	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	4.2E-08	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	4.40E+00	mg/kg	1.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-06	4.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.30E+00	mg/kg	1.5E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.1E-05	4.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.30E+00	mg/kg	2.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-06	7.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.30E+00	mg/kg	8.0E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.9E-08	2.3E-06	mg/kg-day	NA	---	NA
				Carbazole	8.10E-01	mg/kg	2.8E-07	mg/kg-day	NA	---	NA	7.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	5.60E-01	mg/kg	2.0E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-06	5.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	3.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-07	1.1E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.57E+03	mg/kg	3.3E-03	mg/kg-day	NA	---	NA	9.4E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0094
				Arsenic	5.40E+00	mg/kg	1.9E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.8E-06	5.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.018
				Cadmium	2.80E+01	mg/kg	9.8E-06	mg/kg-day	NA	---	NA	2.7E-05	mg/kg-day	1.0E-03	mg/kg-day	0.027
				Chromium Total	1.65E+01	mg/kg	5.8E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.9E-06	1.6E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0054
				Cobalt	7.30E+00	mg/kg	2.6E-06	mg/kg-day	NA	---	NA	7.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.024
				Iron	9.14E+03	mg/kg	3.2E-03	mg/kg-day	NA	---	NA	8.9E-03	mg/kg-day	7.0E-01	mg/kg-day	0.013
				Mercury	1.20E+00	mg/kg	4.2E-07	mg/kg-day	NA	---	NA	1.2E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0073
				Thallium	1.50E+00	mg/kg	5.2E-07	mg/kg-day	NA	---	NA	1.5E-06	mg/kg-day	NA	---	NA
				Vanadium	4.04E+01	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	4.0E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0078
			Ingestion Total								2.1E-05					0.11
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	2.8E-08	mg/kg-day	NA	---	NA	7.7E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	4.40E+00	mg/kg	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.6E-07	3.7E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.30E+00	mg/kg	1.3E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.4E-06	3.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.30E+00	mg/kg	2.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-06	6.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.30E+00	mg/kg	6.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.0E-08	1.9E-06	mg/kg-day	NA	---	NA
				Carbazole	8.10E-01	mg/kg	2.4E-07	mg/kg-day	NA	---	NA	6.8E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	5.60E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-06	4.7E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	9.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.57E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	5.40E+00	mg/kg	3.7E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.6E-07	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0035
				Cadmium	2.80E+01	mg/kg	6.5E-08	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0072
				Chromium Total	1.65E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	7.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	9.14E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Mercury	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.50E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	4.04E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								1.4E-05					0.011

TABLE A-7.1i-6 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area I	Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	7.0E-12	mg/m3	NA	---	NA	2.0E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	4.40E+00	mg/kg	2.6E-10	mg/m3	1.1E-04	(µg/m3)-1	2.8E-11	7.2E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.30E+00	mg/kg	2.5E-10	mg/m3	1.1E-03	(µg/m3)-1	2.8E-10	7.1E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.30E+00	mg/kg	4.3E-10	mg/m3	1.1E-04	(µg/m3)-1	4.7E-11	1.2E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.30E+00	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-11	3.8E-10	mg/m3	NA	---	NA
				Carbazole	8.10E-01	mg/kg	4.8E-11	mg/m3	NA	---	NA	1.3E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	5.60E-01	mg/kg	3.3E-11	mg/m3	1.2E-03	(µg/m3)-1	3.9E-11	9.2E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	6.5E-11	mg/m3	1.1E-04	(µg/m3)-1	7.1E-12	1.8E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.57E+03	mg/kg	5.6E-07	mg/m3	NA	---	NA	1.6E-06	mg/m3	5.0E-03	mg/m3	0.00031
				Arsenic	5.40E+00	mg/kg	3.2E-10	mg/m3	4.3E-03	(µg/m3)-1	1.4E-09	8.9E-10	mg/m3	1.5E-05	mg/m3	0.000059
				Cadmium	2.80E+01	mg/kg	1.6E-09	mg/m3	1.8E-03	(µg/m3)-1	3.0E-09	4.6E-09	mg/m3	1.0E-05	mg/m3	0.00046
				Chromium Total	1.65E+01	mg/kg	9.7E-10	mg/m3	8.4E-02	(µg/m3)-1	8.1E-08	2.7E-09	mg/m3	1.0E-04	mg/m3	0.000027
				Cobalt	7.30E+00	mg/kg	4.3E-10	mg/m3	9.0E-03	(µg/m3)-1	3.9E-09	1.2E-09	mg/m3	6.0E-06	mg/m3	0.00020
				Iron	9.14E+03	mg/kg	5.4E-07	mg/m3	NA	---	NA	1.5E-06	mg/m3	NA	---	NA
				Mercury	1.20E+00	mg/kg	7.0E-11	mg/m3	NA	---	NA	2.0E-10	mg/m3	3.0E-04	mg/m3	0.00000066
				Thallium	1.50E+00	mg/kg	8.8E-11	mg/m3	NA	---	NA	2.5E-10	mg/m3	NA	---	NA
				Vanadium	4.04E+01	mg/kg	2.4E-09	mg/m3	1.5E-02	(µg/m3)-1	3.6E-08	6.6E-09	mg/m3	3.9E-06	mg/m3	0.0017
			Inhalation Total								1.3E-07					0.0028
	Surface Soil Total										3.6E-05					0.12
Soil Total											3.6E-05					0.12
										Total of Receptor Risks Across All Media	3.6E-05				Total of Receptor Hazards Across All Media	0.12

TABLE A-7.2i-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Ingestion	Benzene	5.00E-03	mg/kg	1.7E-09	mg/kg-day	5.5E-02	(mg/kg-day)-1	9.6E-11	4.9E-09	mg/kg-day	4.0E-03	mg/kg-day	0.0000012
				Dibenzofuran	1.31E+01	mg/kg	4.6E-06	mg/kg-day	NA	---	NA	1.3E-05	mg/kg-day	1.0E-03	mg/kg-day	0.013
				Di-n-octyl phthalate	3.10E-01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	3.0E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	1.9E-05	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-05	5.2E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	1.6E-05	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-04	4.4E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	6.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.8E-06	1.8E-05	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	3.0E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	4.3E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.1E-07	1.2E-05	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	5.5E-06	mg/kg-day	NA	---	NA	1.6E-05	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	2.0E-05	mg/kg-day	7.3E-03	(mg/kg-day)-1	1.5E-07	5.7E-05	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	3.9E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.9E-05	1.1E-05	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	1.3E-05	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.7E-06	3.7E-05	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	9.1E-08	mg/kg-day	NA	---	NA	2.5E-07	mg/kg-day	2.0E-02	mg/kg-day	0.000013
				Metals												
				Aluminum	6.73E+03	mg/kg	2.4E-03	mg/kg-day	NA	---	NA	6.6E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0066
				Arsenic	9.93E+00	mg/kg	3.5E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.2E-06	9.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.032
				Cadmium	1.42E+01	mg/kg	5.0E-06	mg/kg-day	NA	---	NA	1.4E-05	mg/kg-day	1.0E-03	mg/kg-day	0.014
				Chromium Total	1.20E+01	mg/kg	4.2E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.1E-06	1.2E-05	mg/kg-day	1.0E+00	mg/kg-day	0.000012
				Cobalt	6.61E+00	mg/kg	2.3E-06	mg/kg-day	NA	---	NA	6.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.022
				Iron	1.19E+04	mg/kg	4.2E-03	mg/kg-day	NA	---	NA	1.2E-02	mg/kg-day	7.0E-01	mg/kg-day	0.017
				Lead	3.48E+02	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	3.4E-04	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	6.7E-05	mg/kg-day	NA	---	NA	1.9E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0027
				Mercury	4.43E-01	mg/kg	1.5E-07	mg/kg-day	NA	---	NA	4.3E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0027
				Silver	8.49E+01	mg/kg	3.0E-05	mg/kg-day	NA	---	NA	8.3E-05	mg/kg-day	5.0E-03	mg/kg-day	0.017
				Thallium	1.20E+00	mg/kg	4.2E-07	mg/kg-day	NA	---	NA	1.2E-06	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	2.9E-05	mg/kg-day	NA	---	NA	8.1E-05	mg/kg-day	5.0E-03	mg/kg-day	0.016
				Zinc	1.27E+03	mg/kg	4.5E-04	mg/kg-day	NA	---	NA	1.2E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0042
			Ingestion Total								1.8E-04					0.15
			Dermal	Benzene	5.00E-03	mg/kg	NA	mg/kg-day	5.5E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	4.0E-03	mg/kg-day	NA
				Dibenzofuran	1.31E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E-03	mg/kg-day	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	7.1E-08	mg/kg-day	NA	---	NA	2.0E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	1.6E-05	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-05	4.5E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	1.4E-05	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.9E-05	3.8E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	5.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.1E-06	1.6E-05	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	9.2E-06	mg/kg-day	NA	---	NA	2.6E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	3.7E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.7E-07	1.0E-05	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	4.8E-06	mg/kg-day	NA	---	NA	1.3E-05	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	1.8E-05	mg/kg-day	7.3E-03	(mg/kg-day)-1	1.3E-07	4.9E-05	mg/kg-day	NA	---	NA

TABLE A-7.2i-6 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Dermal	Dibenz(a,h)anthracene	1.13E+01	mg/kg	3.4E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.5E-05	9.4E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	1.1E-05	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.3E-06	3.2E-05	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-02	mg/kg-day	NA
				Metals												
				Aluminum	6.73E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	9.93E+00	mg/kg	6.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.0E-06	1.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0064
				Cadmium	1.42E+01	mg/kg	3.3E-08	mg/kg-day	NA	---	NA	9.2E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0037
				Chromium Total	1.20E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.61E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.19E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.48E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	4.43E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Silver	8.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-04	mg/kg-day	NA
				Thallium	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.27E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.5E-04					0.010
			Inhalation	Benzene	5.00E-03	mg/kg	1.1E-08	mg/m3	7.8E-06	(µg/m3)-1	8.9E-11	3.2E-08	mg/m3	3.0E-02	mg/m3	0.0000011
				Dibenzofuran	1.31E+01	mg/kg	1.1E+00	mg/m3	NA	---	NA	3.0E+00	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	1.8E-11	mg/m3	NA	---	NA	5.1E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	3.1E-09	mg/m3	1.1E-04	(µg/m3)-1	3.4E-10	8.7E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	2.7E-09	mg/m3	1.1E-03	(µg/m3)-1	2.9E-09	7.4E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	1.1E-09	mg/m3	1.1E-04	(µg/m3)-1	1.2E-10	3.1E-09	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	1.8E-09	mg/m3	NA	---	NA	5.0E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	7.2E-10	mg/m3	1.1E-04	(µg/m3)-1	7.9E-11	2.0E-09	mg/m3	NA	---	NA
				Carbazole	1.59E+01	mg/kg	9.3E-10	mg/m3	NA	---	NA	2.6E-09	mg/m3	NA	---	NA
				Chrysene	5.86E+01	mg/kg	3.4E-09	mg/m3	1.1E-05	(µg/m3)-1	3.8E-11	9.6E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	6.6E-10	mg/m3	1.2E-03	(µg/m3)-1	7.9E-10	1.8E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	2.2E-09	mg/m3	1.1E-04	(µg/m3)-1	2.5E-10	6.2E-09	mg/m3	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	5.2E-07	mg/m3	3.4E-05	(µg/m3)-1	1.8E-08	1.4E-06	mg/m3	3.0E-03	mg/m3	0.00048
				Metals												
				Aluminum	6.73E+03	mg/kg	4.0E-07	mg/m3	NA	---	NA	1.1E-06	mg/m3	5.0E-03	mg/m3	0.00022
				Arsenic	9.93E+00	mg/kg	5.8E-10	mg/m3	4.3E-03	(µg/m3)-1	2.5E-09	1.6E-09	mg/m3	1.5E-05	mg/m3	0.00011
				Cadmium	1.42E+01	mg/kg	8.4E-10	mg/m3	1.8E-03	(µg/m3)-1	1.5E-09	2.3E-09	mg/m3	1.0E-05	mg/m3	0.00023
				Chromium Total	1.20E+01	mg/kg	7.1E-10	mg/m3	8.4E-02	(µg/m3)-1	5.9E-08	2.0E-09	mg/m3	1.0E-04	mg/m3	0.000020
				Cobalt	6.61E+00	mg/kg	3.9E-10	mg/m3	9.0E-03	(µg/m3)-1	3.5E-09	1.1E-09	mg/m3	6.0E-06	mg/m3	0.00018
				Iron	1.19E+04	mg/kg	7.0E-07	mg/m3	NA	---	NA	2.0E-06	mg/m3	NA	---	NA

TABLE A-7.2i-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Inhalation	Lead	3.48E+02	mg/kg	2.0E-08	mg/m3	NA	---	NA	5.7E-08	mg/m3	NA	---	NA
				Manganese	1.91E+02	mg/kg	1.1E-08	mg/m3	NA	---	NA	3.1E-08	mg/m3	5.0E-05	mg/m3	0.00063
				Mercury	4.43E-01	mg/kg	2.6E-11	mg/m3	NA	---	NA	7.3E-11	mg/m3	3.0E-04	mg/m3	0.00000024
				Silver	8.49E+01	mg/kg	5.0E-09	mg/m3	NA	---	NA	1.4E-08	mg/m3	NA	---	NA
				Thallium	1.20E+00	mg/kg	7.0E-11	mg/m3	NA	---	NA	2.0E-10	mg/m3	NA	---	NA
				Vanadium	8.25E+01	mg/kg	4.8E-09	mg/m3	1.5E-02	(µg/m3)-1	7.3E-08	1.4E-08	mg/m3	3.9E-06	mg/m3	0.0035
				Zinc	1.27E+03	mg/kg	7.5E-08	mg/m3	NA	---	NA	2.1E-07	mg/m3	NA	---	NA
			Inhalation Total								1.6E-07					0.0053
	Aggregate Soil Total										3.3E-04					0.16
Soil Total											3.3E-04					0.16
										Total of Receptor Risks Across All Media	3.3E-04				Total of Receptor Hazards Across All Media	0.16

TABLE A-7.2i-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Ingestion	Benzene	5.00E-03	mg/kg	1.2E-10	mg/kg-day	5.5E-02	(mg/kg-day)-1	6.6E-12	8.4E-09	mg/kg-day	4.0E-03	mg/kg-day	0.0000021
				Dibenzofuran	1.31E+01	mg/kg	3.1E-07	mg/kg-day	NA	---	NA	2.2E-05	mg/kg-day	1.0E-03	mg/kg-day	0.022
				Di-n-octyl phthalate	3.10E-01	mg/kg	7.4E-09	mg/kg-day	NA	---	NA	5.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	1.3E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.3E-07	8.9E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	1.1E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.9E-06	7.6E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-07	3.1E-05	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	7.3E-07	mg/kg-day	NA	---	NA	5.1E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	2.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.2E-08	2.1E-05	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	3.8E-07	mg/kg-day	NA	---	NA	2.7E-05	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	1.4E-06	mg/kg-day	7.3E-03	(mg/kg-day)-1	1.0E-08	9.8E-05	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	2.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-06	1.9E-05	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	9.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.7E-07	6.4E-05	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	6.2E-09	mg/kg-day	NA	---	NA	4.4E-07	mg/kg-day	2.0E-02	mg/kg-day	0.000022
				Metals												
				Aluminum	6.73E+03	mg/kg	1.6E-04	mg/kg-day	NA	---	NA	1.1E-02	mg/kg-day	1.0E+00	mg/kg-day	0.011
				Arsenic	9.93E+00	mg/kg	2.4E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.6E-07	1.7E-05	mg/kg-day	3.0E-04	mg/kg-day	0.056
				Cadmium	1.42E+01	mg/kg	3.4E-07	mg/kg-day	NA	---	NA	2.4E-05	mg/kg-day	1.0E-03	mg/kg-day	0.024
				Chromium Total	1.20E+01	mg/kg	2.9E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.4E-07	2.0E-05	mg/kg-day	3.0E-03	mg/kg-day	0.0067
				Cobalt	6.61E+00	mg/kg	1.6E-07	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.037
				Iron	1.19E+04	mg/kg	2.9E-04	mg/kg-day	NA	---	NA	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.029
				Lead	3.48E+02	mg/kg	8.4E-06	mg/kg-day	NA	---	NA	5.8E-04	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	4.6E-06	mg/kg-day	NA	---	NA	3.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0046
				Mercury	4.43E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	7.4E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0046
				Silver	8.49E+01	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	1.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.029
				Thallium	1.20E+00	mg/kg	2.9E-08	mg/kg-day	NA	---	NA	2.0E-06	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	1.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.027
				Zinc	1.27E+03	mg/kg	3.1E-05	mg/kg-day	NA	---	NA	2.1E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0071
			Ingestion Total								1.2E-05					0.26
			Dermal	Benzene	5.00E-03	mg/kg	NA	mg/kg-day	5.5E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	4.0E-03	mg/kg-day	NA
				Dibenzofuran	1.31E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E-03	mg/kg-day	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	2.2E-09	mg/kg-day	NA	---	NA	1.6E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-07	3.5E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	4.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-06	3.0E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-07	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	2.9E-07	mg/kg-day	NA	---	NA	2.0E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.4E-09	8.0E-06	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	1.5E-07	mg/kg-day	NA	---	NA	1.0E-05	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	5.5E-07	mg/kg-day	7.3E-03	(mg/kg-day)-1	4.0E-09	3.8E-05	mg/kg-day	NA	---	NA

TABLE A-7.2i-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Dermal	Dibenz(a,h)anthracene	1.13E+01	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.7E-07	7.4E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-07	2.5E-05	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-02	mg/kg-day	NA
				Metals												
				Aluminum	6.73E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	9.93E+00	mg/kg	2.1E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.2E-08	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0050
				Cadmium	1.42E+01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	7.2E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0029
				Chromium Total	1.20E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.61E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.19E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.48E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	4.43E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Silver	8.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-04	mg/kg-day	NA
				Thallium	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.27E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								4.6E-06					0.0079
			Inhalation	Benzene	5.00E-03	mg/kg	1.2E-09	mg/m3	7.8E-06	(µg/m3)-1	9.2E-12	8.3E-08	mg/m3	3.0E-02	mg/m3	0.0000028
				Dibenzofuran	1.31E+01	mg/kg	2.2E-02	mg/m3	NA	---	NA	1.6E+00	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	3.8E-10	mg/m3	NA	---	NA	2.6E-08	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	6.5E-08	mg/m3	1.1E-04	(µg/m3)-1	7.1E-09	4.5E-06	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	5.5E-08	mg/m3	1.1E-03	(µg/m3)-1	6.1E-08	3.9E-06	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	2.3E-08	mg/m3	1.1E-04	(µg/m3)-1	2.5E-09	1.6E-06	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	3.7E-08	mg/m3	NA	---	NA	2.6E-06	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	1.5E-08	mg/m3	1.1E-04	(µg/m3)-1	1.7E-09	1.1E-06	mg/m3	NA	---	NA
				Carbazole	1.59E+01	mg/kg	1.9E-08	mg/m3	NA	---	NA	1.4E-06	mg/m3	NA	---	NA
				Chrysene	5.86E+01	mg/kg	7.2E-08	mg/m3	1.1E-05	(µg/m3)-1	7.9E-10	5.0E-06	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	1.4E-08	mg/m3	1.2E-03	(µg/m3)-1	1.6E-08	9.6E-07	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	4.6E-08	mg/m3	1.1E-04	(µg/m3)-1	5.1E-09	3.2E-06	mg/m3	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	5.4E-08	mg/m3	3.4E-05	(µg/m3)-1	1.8E-09	3.8E-06	mg/m3	3.0E-03	mg/m3	0.0013
				Metals												
				Aluminum	6.73E+03	mg/kg	8.2E-06	mg/m3	NA	---	NA	5.8E-04	mg/m3	5.0E-03	mg/m3	0.12
				Arsenic	9.93E+00	mg/kg	1.2E-08	mg/m3	4.3E-03	(µg/m3)-1	5.2E-08	8.5E-07	mg/m3	1.5E-05	mg/m3	0.057
				Cadmium	1.42E+01	mg/kg	1.7E-08	mg/m3	1.8E-03	(µg/m3)-1	3.1E-08	1.2E-06	mg/m3	1.0E-05	mg/m3	0.12
				Chromium Total	1.20E+01	mg/kg	1.5E-08	mg/m3	8.4E-02	(µg/m3)-1	1.2E-06	1.0E-06	mg/m3	1.0E-04	mg/m3	0.010
				Cobalt	6.61E+00	mg/kg	8.1E-09	mg/m3	9.0E-03	(µg/m3)-1	7.3E-08	5.7E-07	mg/m3	6.0E-06	mg/m3	0.094
				Iron	1.19E+04	mg/kg	1.5E-05	mg/m3	NA	---	NA	1.0E-03	mg/m3	NA	---	NA

TABLE A-7.2i-8 RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Inhalation	Lead	3.48E+02	mg/kg	4.3E-07	mg/m3	NA	---	NA	3.0E-05	mg/m3	NA	---	NA
				Manganese	1.91E+02	mg/kg	2.3E-07	mg/m3	NA	---	NA	1.6E-05	mg/m3	5.0E-05	mg/m3	0.33
				Mercury	4.43E-01	mg/kg	5.4E-10	mg/m3	NA	---	NA	3.8E-08	mg/m3	3.0E-04	mg/m3	0.00013
				Silver	8.49E+01	mg/kg	1.0E-07	mg/m3	NA	---	NA	7.3E-06	mg/m3	NA	---	NA
				Thallium	1.20E+00	mg/kg	1.5E-09	mg/m3	NA	---	NA	1.0E-07	mg/m3	NA	---	NA
				Vanadium	8.25E+01	mg/kg	1.0E-07	mg/m3	1.5E-02	(µg/m3)-1	1.5E-06	7.0E-06	mg/m3	5.6E-05	mg/m3	0.13
				Zinc	1.27E+03	mg/kg	1.6E-06	mg/m3	NA	---	NA	1.1E-04	mg/m3	NA	---	NA
			Inhalation Total								3.0E-06					0.85
	Aggregate Soil Total										2.0E-05					1.1
Soil Total											2.0E-05					1.1
										Total of Receptor Risks Across All Media	2.0E-05			Total of Receptor Hazards Across All Media		1.1

TABLE A-7.1i-6 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area I	Ingestion	Di-n-octyl phthalate	1.20E-01	mg/kg	6.6E-09	mg/kg-day	NA	---	NA	5.1E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	4.40E+00	mg/kg	2.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.8E-07	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.30E+00	mg/kg	2.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.7E-06	1.8E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.30E+00	mg/kg	4.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.9E-07	3.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.30E+00	mg/kg	1.3E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	9.3E-09	9.9E-07	mg/kg-day	NA	---	NA
				Carbazole	8.10E-01	mg/kg	4.5E-08	mg/kg-day	NA	---	NA	3.5E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	5.60E-01	mg/kg	3.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-07	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.4E-08	4.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.57E+03	mg/kg	5.3E-04	mg/kg-day	NA	---	NA	4.1E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0041
				Arsenic	5.40E+00	mg/kg	3.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.5E-07	2.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0077
				Cadmium	2.80E+01	mg/kg	1.5E-06	mg/kg-day	NA	---	NA	1.2E-05	mg/kg-day	1.0E-03	mg/kg-day	0.012
				Chromium Total	1.65E+01	mg/kg	9.1E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.5E-07	7.1E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0024
				Cobalt	7.30E+00	mg/kg	4.0E-07	mg/kg-day	NA	---	NA	3.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.010
				Iron	9.14E+03	mg/kg	5.0E-04	mg/kg-day	NA	---	NA	3.9E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0056
				Mercury	1.20E+00	mg/kg	6.6E-08	mg/kg-day	NA	---	NA	5.1E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0032
				Thallium	1.50E+00	mg/kg	8.3E-08	mg/kg-day	NA	---	NA	6.4E-07	mg/kg-day	NA	---	NA
				Vanadium	4.04E+01	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	1.7E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0034
			Ingestion Total								3.4E-06					0.049
			Dermal	Di-n-octyl phthalate	1.20E-01	mg/kg	8.7E-10	mg/kg-day	NA	---	NA	6.8E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	4.40E+00	mg/kg	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.0E-08	3.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.30E+00	mg/kg	4.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.0E-07	3.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	7.30E+00	mg/kg	6.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.0E-08	5.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	2.30E+00	mg/kg	2.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.6E-09	1.7E-07	mg/kg-day	NA	---	NA
				Carbazole	8.10E-01	mg/kg	7.7E-09	mg/kg-day	NA	---	NA	6.0E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	5.60E-01	mg/kg	5.3E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.9E-08	4.1E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.6E-09	8.1E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.57E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	5.40E+00	mg/kg	1.2E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.8E-08	9.2E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00031
				Cadmium	2.80E+01	mg/kg	2.0E-09	mg/kg-day	NA	---	NA	1.6E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00063
				Chromium Total	1.65E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	7.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	9.14E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Mercury	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Thallium	1.50E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	4.04E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.4E-07					0.00094

TABLE A-7.1i-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area I	Inhalation	Di-n-octyl phthalate	1.20E-01	mg/kg	2.2E-12	mg/m3	NA	---	NA	1.7E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	4.40E+00	mg/kg	8.1E-11	mg/m3	1.1E-04	(µg/m3)-1	9.0E-12	6.3E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.30E+00	mg/kg	8.0E-11	mg/m3	1.1E-03	(µg/m3)-1	8.8E-11	6.2E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	7.30E+00	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-11	1.1E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	2.30E+00	mg/kg	4.3E-11	mg/m3	1.1E-04	(µg/m3)-1	4.7E-12	3.3E-10	mg/m3	NA	---	NA
				Carbazole	8.10E-01	mg/kg	1.5E-11	mg/m3	NA	---	NA	1.2E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	5.60E-01	mg/kg	1.0E-11	mg/m3	1.2E-03	(µg/m3)-1	1.2E-11	8.1E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	2.0E-11	mg/m3	1.1E-04	(µg/m3)-1	2.2E-12	1.6E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.57E+03	mg/kg	1.8E-07	mg/m3	NA	---	NA	1.4E-06	mg/m3	5.0E-03	mg/m3	0.00028
				Arsenic	5.40E+00	mg/kg	1.0E-10	mg/m3	4.3E-03	(µg/m3)-1	4.3E-10	7.8E-10	mg/m3	1.5E-05	mg/m3	0.000052
				Cadmium	2.80E+01	mg/kg	5.2E-10	mg/m3	1.8E-03	(µg/m3)-1	9.3E-10	4.0E-09	mg/m3	1.0E-05	mg/m3	0.00040
				Chromium Total	1.65E+01	mg/kg	3.1E-10	mg/m3	8.4E-02	(µg/m3)-1	2.6E-08	2.4E-09	mg/m3	1.0E-04	mg/m3	0.000024
				Cobalt	7.30E+00	mg/kg	1.4E-10	mg/m3	9.0E-03	(µg/m3)-1	1.2E-09	1.1E-09	mg/m3	6.0E-06	mg/m3	0.00018
				Iron	9.14E+03	mg/kg	1.7E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	NA	---	NA
				Mercury	1.20E+00	mg/kg	2.2E-11	mg/m3	NA	---	NA	1.7E-10	mg/m3	3.0E-04	mg/m3	0.00000058
				Thallium	1.50E+00	mg/kg	2.8E-11	mg/m3	NA	---	NA	2.2E-10	mg/m3	NA	---	NA
				Vanadium	4.04E+01	mg/kg	7.5E-10	mg/m3	1.5E-02	(µg/m3)-1	1.1E-08	5.8E-09	mg/m3	3.9E-06	mg/m3	0.0015
			Inhalation Total								4.0E-08					0.0024
	Surface Soil Total										3.9E-06					0.052
Soil Total											3.9E-06					0.052
										Total of Receptor Risks Across All Media	3.9E-06				Total of Receptor Hazards Across All Media	0.052

TABLE A-7.2i-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Ingestion	Benzene	5.00E-03	mg/kg	2.8E-10	mg/kg-day	5.5E-02	(mg/kg-day)-1	1.5E-11	2.1E-09	mg/kg-day	4.0E-03	mg/kg-day	0.00000054
				Dibenzofuran	1.31E+01	mg/kg	7.2E-07	mg/kg-day	NA	---	NA	5.6E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0056
				Di-n-octyl phthalate	3.10E-01	mg/kg	1.7E-08	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-06	2.3E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	2.5E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.8E-05	1.9E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	1.0E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.5E-07	8.0E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	1.3E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	6.8E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.9E-08	5.3E-06	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	8.7E-07	mg/kg-day	NA	---	NA	6.8E-06	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	3.2E-06	mg/kg-day	7.3E-03	(mg/kg-day)-1	2.4E-08	2.5E-05	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	6.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.5E-06	4.8E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	2.1E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-06	1.6E-05	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	1.4E-08	mg/kg-day	NA	---	NA	1.1E-07	mg/kg-day	2.0E-02	mg/kg-day	0.0000056
				Metals												
				Aluminum	6.73E+03	mg/kg	3.7E-04	mg/kg-day	NA	---	NA	2.9E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0029
				Arsenic	9.93E+00	mg/kg	5.5E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.2E-07	4.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Cadmium	1.42E+01	mg/kg	7.8E-07	mg/kg-day	NA	---	NA	6.1E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0061
				Chromium Total	1.20E+01	mg/kg	6.6E-07	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.3E-07	5.2E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0017
				Cobalt	6.61E+00	mg/kg	3.6E-07	mg/kg-day	NA	---	NA	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0094
				Iron	1.19E+04	mg/kg	6.6E-04	mg/kg-day	NA	---	NA	5.1E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0073
				Lead	3.48E+02	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	1.5E-04	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	8.2E-05	mg/kg-day	7.0E-02	mg/kg-day	0.0012
				Mercury	4.43E-01	mg/kg	2.4E-08	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0012
				Silver	8.49E+01	mg/kg	4.7E-06	mg/kg-day	NA	---	NA	3.6E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0073
				Thallium	1.20E+00	mg/kg	6.6E-08	mg/kg-day	NA	---	NA	5.1E-07	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	4.5E-06	mg/kg-day	NA	---	NA	3.5E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0070
				Zinc	1.27E+03	mg/kg	7.0E-05	mg/kg-day	NA	---	NA	5.5E-04	mg/kg-day	3.0E-01	mg/kg-day	0.0018
			Ingestion Total								2.8E-05					0.066
			Dermal	Benzene	5.00E-03	mg/kg	NA	mg/kg-day	5.5E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	4.0E-03	mg/kg-day	NA
				Dibenzofuran	1.31E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E-03	mg/kg-day	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	2.3E-09	mg/kg-day	NA	---	NA	1.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.7E-07	3.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	4.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-06	3.3E-06	mg/kg-day	NA	---	NA

TABLE A-7.2i-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Dermal	Benzo(b)fluoranthene	1.87E+01	mg/kg	1.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	2.9E-07	mg/kg-day	NA	---	NA	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.5E-09	9.0E-07	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	1.5E-07	mg/kg-day	NA	---	NA	1.2E-06	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	5.5E-07	mg/kg-day	7.3E-03	(mg/kg-day)-1	4.0E-09	4.3E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	1.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.8E-07	8.3E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.6E-07	2.8E-06	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-02	mg/kg-day	NA
				Metals												
				Aluminum	6.73E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	9.93E+00	mg/kg	2.2E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.3E-08	1.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00056
				Cadmium	1.42E+01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	8.1E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00032
				Chromium Total	1.20E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.61E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.19E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.48E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	4.43E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Silver	8.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-04	mg/kg-day	NA
				Thallium	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.27E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								4.7E-06					0.00088
			Inhalation	Benzene	5.00E-03	mg/kg	6.0E-09	mg/m3	7.8E-06	(µg/m3)-1	4.7E-11	4.6E-08	mg/m3	3.0E-02	mg/m3	0.0000015
				Dibenzofuran	1.31E+01	mg/kg	3.4E-01	mg/m3	NA	---	NA	2.6E+00	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	5.7E-12	mg/m3	NA	---	NA	4.5E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	9.8E-10	mg/m3	1.1E-04	(µg/m3)-1	1.1E-10	7.6E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	8.4E-10	mg/m3	1.1E-03	(µg/m3)-1	9.2E-10	6.5E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	3.5E-10	mg/m3	1.1E-04	(µg/m3)-1	3.8E-11	2.7E-09	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	5.7E-10	mg/m3	NA	---	NA	4.4E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	2.3E-10	mg/m3	1.1E-04	(µg/m3)-1	2.5E-11	1.8E-09	mg/m3	NA	---	NA
				Carbazole	1.59E+01	mg/kg	2.9E-10	mg/m3	NA	---	NA	2.3E-09	mg/m3	NA	---	NA
				Chrysene	5.86E+01	mg/kg	1.1E-09	mg/m3	1.1E-05	(µg/m3)-1	1.2E-11	8.4E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	2.1E-10	mg/m3	1.2E-03	(µg/m3)-1	2.5E-10	1.6E-09	mg/m3	NA	---	NA

TABLE A-7.2i-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Inhalation	Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	7.0E-10	mg/m3	1.1E-04	(µg/m3)-1	7.7E-11	5.5E-09	mg/m3	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	2.7E-07	mg/m3	3.4E-05	(µg/m3)-1	9.2E-09	2.1E-06	mg/m3	3.0E-03	mg/m3	0.00071
				Metals												
				Aluminum	6.73E+03	mg/kg	1.2E-07	mg/m3	NA	---	NA	9.7E-07	mg/m3	5.0E-03	mg/m3	0.00019
				Arsenic	9.93E+00	mg/kg	1.8E-10	mg/m3	4.3E-03	(µg/m3)-1	7.9E-10	1.4E-09	mg/m3	1.5E-05	mg/m3	0.000095
				Cadmium	1.42E+01	mg/kg	2.6E-10	mg/m3	1.8E-03	(µg/m3)-1	4.7E-10	2.0E-09	mg/m3	1.0E-05	mg/m3	0.00020
				Chromium Total	1.20E+01	mg/kg	2.2E-10	mg/m3	8.4E-02	(µg/m3)-1	1.9E-08	1.7E-09	mg/m3	1.0E-04	mg/m3	0.000017
				Cobalt	6.61E+00	mg/kg	1.2E-10	mg/m3	9.0E-03	(µg/m3)-1	1.1E-09	9.5E-10	mg/m3	6.0E-06	mg/m3	0.00016
				Iron	1.19E+04	mg/kg	2.2E-07	mg/m3	NA	---	NA	1.7E-06	mg/m3	NA	---	NA
				Lead	3.48E+02	mg/kg	6.4E-09	mg/m3	NA	---	NA	5.0E-08	mg/m3	NA	---	NA
				Manganese	1.91E+02	mg/kg	3.5E-09	mg/m3	NA	---	NA	2.8E-08	mg/m3	5.0E-05	mg/m3	0.00055
				Mercury	4.43E-01	mg/kg	8.2E-12	mg/m3	NA	---	NA	6.4E-11	mg/m3	3.0E-04	mg/m3	0.00000021
				Silver	8.49E+01	mg/kg	1.6E-09	mg/m3	NA	---	NA	1.2E-08	mg/m3	NA	---	NA
				Thallium	1.20E+00	mg/kg	2.2E-11	mg/m3	NA	---	NA	1.7E-10	mg/m3	NA	---	NA
				Vanadium	8.25E+01	mg/kg	1.5E-09	mg/m3	1.5E-02	(µg/m3)-1	2.3E-08	1.2E-08	mg/m3	3.9E-06	mg/m3	0.0030
				Zinc	1.27E+03	mg/kg	2.4E-08	mg/m3	NA	---	NA	1.8E-07	mg/m3	NA	---	NA
			Inhalation Total								5.5E-08					0.0050
	Aggregate Soil Total										3.3E-05					0.072
Soil Total											3.3E-05					0.072
										Total of Receptor Risks Across All Media	3.3E-05				Total of Receptor Hazards Across All Media	0.072

TABLE A-7.2i-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Ingestion	Benzene	5.00E-03	mg/kg	7.3E-12	mg/kg-day	5.5E-02	(mg/kg-day)-1	4.0E-13	5.1E-10	mg/kg-day	4.0E-03	mg/kg-day	0.00000013
				Dibenzofuran	1.31E+01	mg/kg	1.9E-08	mg/kg-day	NA	---	NA	1.3E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0013
				Di-n-octyl phthalate	3.10E-01	mg/kg	4.5E-10	mg/kg-day	NA	---	NA	3.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	7.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.6E-08	5.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	6.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.8E-07	4.6E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	2.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-08	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	4.4E-08	mg/kg-day	NA	---	NA	3.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	1.8E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.3E-09	1.3E-06	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	2.3E-08	mg/kg-day	NA	---	NA	1.6E-06	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	8.5E-08	mg/kg-day	7.3E-03	(mg/kg-day)-1	6.2E-10	6.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	1.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.2E-07	1.1E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-08	3.9E-06	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	3.8E-10	mg/kg-day	NA	---	NA	2.6E-08	mg/kg-day	2.0E-02	mg/kg-day	0.0000013
				Metals												
				Aluminum	6.73E+03	mg/kg	9.8E-06	mg/kg-day	NA	---	NA	6.9E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00069
				Arsenic	9.93E+00	mg/kg	1.4E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.2E-08	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0034
				Cadmium	1.42E+01	mg/kg	2.1E-08	mg/kg-day	NA	---	NA	1.4E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0014
				Chromium Total	1.20E+01	mg/kg	1.8E-08	mg/kg-day	5.0E-01	(mg/kg-day)-1	8.8E-09	1.2E-06	mg/kg-day	3.0E-03	mg/kg-day	0.00041
				Cobalt	6.61E+00	mg/kg	9.6E-09	mg/kg-day	NA	---	NA	6.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0022
				Iron	1.19E+04	mg/kg	1.7E-05	mg/kg-day	NA	---	NA	1.2E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0017
				Lead	3.48E+02	mg/kg	5.1E-07	mg/kg-day	NA	---	NA	3.5E-05	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	2.8E-07	mg/kg-day	NA	---	NA	1.9E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00028
				Mercury	4.43E-01	mg/kg	6.4E-10	mg/kg-day	NA	---	NA	4.5E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00028
				Silver	8.49E+01	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	8.6E-06	mg/kg-day	5.0E-03	mg/kg-day	0.0017
				Thallium	1.20E+00	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	8.4E-06	mg/kg-day	5.0E-03	mg/kg-day	0.0017
				Zinc	1.27E+03	mg/kg	1.9E-06	mg/kg-day	NA	---	NA	1.3E-04	mg/kg-day	3.0E-01	mg/kg-day	0.00043
			Ingestion Total								7.5E-07					0.016
			Dermal	Benzene	5.00E-03	mg/kg	NA	mg/kg-day	5.5E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	4.0E-03	mg/kg-day	NA
				Dibenzofuran	1.31E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E-03	mg/kg-day	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	1.5E-10	mg/kg-day	NA	---	NA	1.0E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	3.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-08	2.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	2.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-07	2.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.5E-09	8.2E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	1.9E-08	mg/kg-day	NA	---	NA	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	7.7E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.6E-10	5.4E-07	mg/kg-day	NA	---	NA
				Carbazole	1.59E+01	mg/kg	9.9E-09	mg/kg-day	NA	---	NA	6.9E-07	mg/kg-day	NA	---	NA
				Chrysene	5.86E+01	mg/kg	3.7E-08	mg/kg-day	7.3E-03	(mg/kg-day)-1	2.7E-10	2.6E-06	mg/kg-day	NA	---	NA

TABLE A-7.2i-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Dermal	Dibenz(a,h)anthracene	1.13E+01	mg/kg	7.0E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.1E-08	4.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-08	1.7E-06	mg/kg-day	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-02	mg/kg-day	NA
				Metals												
				Aluminum	6.73E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	9.93E+00	mg/kg	1.4E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.1E-09	1.0E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00033
				Cadmium	1.42E+01	mg/kg	6.8E-11	mg/kg-day	NA	---	NA	4.8E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00019
				Chromium Total	1.20E+01	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.61E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.19E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	3.48E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	1.91E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	4.43E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Silver	8.49E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	2.0E-04	mg/kg-day	NA
				Thallium	1.20E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	8.25E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.27E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								3.1E-07					0.00052
			Inhalation	Benzene	5.00E-03	mg/kg	2.4E-10	mg/m3	7.8E-06	(µg/m3)-1	1.8E-12	1.7E-08	mg/m3	3.0E-02	mg/m3	0.00000055
				Dibenzofuran	1.31E+01	mg/kg	4.5E-03	mg/m3	NA	---	NA	3.1E-01	mg/m3	NA	---	NA
				Di-n-octyl phthalate	3.10E-01	mg/kg	7.6E-11	mg/m3	NA	---	NA	5.3E-09	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	5.31E+01	mg/kg	1.3E-08	mg/m3	1.1E-04	(µg/m3)-1	1.4E-09	9.1E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	4.52E+01	mg/kg	1.1E-08	mg/m3	1.1E-03	(µg/m3)-1	1.2E-08	7.7E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.87E+01	mg/kg	4.6E-09	mg/m3	1.1E-04	(µg/m3)-1	5.0E-10	3.2E-07	mg/m3	NA	---	NA
				Benzo(g,h,i)perylene	3.06E+01	mg/kg	7.5E-09	mg/m3	NA	---	NA	5.2E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.23E+01	mg/kg	3.0E-09	mg/m3	1.1E-04	(µg/m3)-1	3.3E-10	2.1E-07	mg/m3	NA	---	NA
				Carbazole	1.59E+01	mg/kg	3.9E-09	mg/m3	NA	---	NA	2.7E-07	mg/m3	NA	---	NA
				Chrysene	5.86E+01	mg/kg	1.4E-08	mg/m3	1.1E-05	(µg/m3)-1	1.6E-10	1.0E-06	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	1.13E+01	mg/kg	2.7E-09	mg/m3	1.2E-03	(µg/m3)-1	3.3E-09	1.9E-07	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	3.80E+01	mg/kg	9.3E-09	mg/m3	1.1E-04	(µg/m3)-1	1.0E-09	6.5E-07	mg/m3	NA	---	NA
				Naphthalene	2.60E-01	mg/kg	1.1E-08	mg/m3	3.4E-05	(µg/m3)-1	3.7E-10	7.5E-07	mg/m3	3.0E-03	mg/m3	0.00025
				Metals												
				Aluminum	6.73E+03	mg/kg	1.6E-06	mg/m3	NA	---	NA	1.2E-04	mg/m3	5.0E-03	mg/m3	0.023
				Arsenic	9.93E+00	mg/kg	2.4E-09	mg/m3	4.3E-03	(µg/m3)-1	1.0E-08	1.7E-07	mg/m3	1.5E-05	mg/m3	0.011
				Cadmium	1.42E+01	mg/kg	3.5E-09	mg/m3	1.8E-03	(µg/m3)-1	6.3E-09	2.4E-07	mg/m3	1.0E-05	mg/m3	0.024
				Chromium Total	1.20E+01	mg/kg	2.9E-09	mg/m3	8.4E-02	(µg/m3)-1	2.5E-07	2.1E-07	mg/m3	1.0E-04	mg/m3	0.0021
				Cobalt	6.61E+00	mg/kg	1.6E-09	mg/m3	9.0E-03	(µg/m3)-1	1.5E-08	1.1E-07	mg/m3	6.0E-06	mg/m3	0.019
				Iron	1.19E+04	mg/kg	2.9E-06	mg/m3	NA	---	NA	2.0E-04	mg/m3	NA	---	NA

TABLE A-7.2i-8 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I

WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Inhalation	Lead	3.48E+02	mg/kg	8.5E-08	mg/m3	NA	---	NA	6.0E-06	mg/m3	NA	---	NA
				Manganese	1.91E+02	mg/kg	4.7E-08	mg/m3	NA	---	NA	3.3E-06	mg/m3	5.0E-05	mg/m3	0.065
				Mercury	4.43E-01	mg/kg	1.1E-10	mg/m3	NA	---	NA	7.6E-09	mg/m3	3.0E-04	mg/m3	0.000025
				Silver	8.49E+01	mg/kg	2.1E-08	mg/m3	NA	---	NA	1.5E-06	mg/m3	NA	---	NA
				Thallium	1.20E+00	mg/kg	2.9E-10	mg/m3	NA	---	NA	2.0E-08	mg/m3	NA	---	NA
				Vanadium	8.25E+01	mg/kg	2.0E-08	mg/m3	1.5E-02	(µg/m3)-1	3.0E-07	1.4E-06	mg/m3	5.6E-05	mg/m3	0.025
				Zinc	1.27E+03	mg/kg	3.1E-07	mg/m3	NA	---	NA	2.2E-05	mg/m3	NA	---	NA
			Inhalation Total								6.0E-07					0.17
	Aggregate Soil Total										1.7E-06					0.19
Soil Total											1.7E-06					0.19
										Total of Receptor Risks Across All Media	1.7E-06				Total of Receptor Hazards Across All Media	0.19

TABLE A-7.1j-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	3.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	2.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	6.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	6.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	1.6E-05	mg/kg-day	2.0E-05	mg/kg-day	0.79
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	8.3E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	0.012
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	1.2E-06	mg/kg-day	4.0E-04	mg/kg-day	0.0030
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	6.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0048
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	1.9E-02	mg/kg-day	3.0E-03	mg/kg-day	6.4
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	8.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.029
				Iron	1.31E+04	mg/kg	---	---	---	---	---	1.8E-02	mg/kg-day	7.0E-01	mg/kg-day	0.026
				Lead	4.13E+02	mg/kg	---	---	---	---	---	5.7E-04	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	3.9E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0056
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	2.4E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0015
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	2.6E-03	mg/kg-day	2.0E-02	mg/kg-day	0.13
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	3.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.068
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	2.0E-02	mg/kg-day	3.0E-01	mg/kg-day	0.065
			Ingestion Total								---					7.5
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	7.7E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	9.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	9.8E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	3.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.8E-07	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	8.8E-06	mg/kg-day	2.0E-05	mg/kg-day	0.44
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	4.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	7.9E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0026
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	1.9E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00076
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.44
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	9.5E-10	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	3.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	7.9E-09	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	4.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	6.3E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	9.6E-06	mg/m3	1.0E-04	mg/m3	0.096
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00074
				Iron	1.31E+04	mg/kg	---	---	---	---	---	9.1E-06	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	2.9E-07	mg/m3	NA	---	NA

TABLE A-7.1j-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	3.0E-04	mg/m3	0.00000040
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	1.3E-06	mg/m3	9.0E-05	mg/m3	0.015
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	1.7E-07	mg/m3	3.9E-06	mg/m3	0.044
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.16
	Surface Soil Total										---					8.1
Soil Total											---					8.1
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	8.1

TABLE A-7.1j-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	2.3E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	2.8E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	2.0E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	2.3E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	1.8E-05	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	5.7E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	6.3E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	1.5E-04	mg/kg-day	2.0E-05	mg/kg-day	7.4
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	7.8E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	1.2E-01	mg/kg-day	1.0E+00	mg/kg-day	0.12
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	1.1E-05	mg/kg-day	4.0E-04	mg/kg-day	0.028
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	6.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.20
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	4.5E-05	mg/kg-day	1.0E-03	mg/kg-day	0.045
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	1.8E-01	mg/kg-day	3.0E-03	mg/kg-day	59
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	8.2E-05	mg/kg-day	3.0E-04	mg/kg-day	0.27
				Iron	1.31E+04	mg/kg	---	---	---	---	---	1.7E-01	mg/kg-day	7.0E-01	mg/kg-day	0.24
				Lead	4.13E+02	mg/kg	---	---	---	---	---	5.3E-03	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	3.6E-03	mg/kg-day	7.0E-02	mg/kg-day	0.052
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	2.2E-06	mg/kg-day	1.6E-04	mg/kg-day	0.014
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	2.4E-02	mg/kg-day	2.0E-02	mg/kg-day	1.2
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	1.7E-05	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	3.2E-03	mg/kg-day	5.0E-03	mg/kg-day	0.63
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	1.8E-01	mg/kg-day	3.0E-01	mg/kg-day	0.61
			Ingestion Total								---					70
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	5.0E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	6.4E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	7.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	8.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	6.4E-06	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	2.1E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	2.3E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	5.1E-06	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	5.8E-05	mg/kg-day	2.0E-05	mg/kg-day	2.9
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	3.0E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	5.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0050
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					2.9
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	9.5E-10	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	3.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	7.9E-09	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	4.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	6.3E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	9.6E-06	mg/m3	1.0E-04	mg/m3	0.096
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00074
				Iron	1.31E+04	mg/kg	---	---	---	---	---	9.1E-06	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	2.9E-07	mg/m3	NA	---	NA

TABLE A-7.1j-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	3.0E-04	mg/m3	0.00000040
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	1.3E-06	mg/m3	9.0E-05	mg/m3	0.015
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	1.7E-07	mg/m3	3.9E-06	mg/m3	0.044
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.16
	Surface Soil Total										---					73
Soil Total											---					73
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	73

TABLE A-7.1j-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	2.2E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.79E-01	mg/kg	2.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	3.5E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-05	---	---	---	---	---
				Benzo(a)pyrene	1.57E+00	mg/kg	2.5E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.7E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.83E+00	mg/kg	2.9E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.0E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.38E+00	mg/kg	2.2E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	6.8E-07	---	---	---	---	---
				Carbazole	4.45E-01	mg/kg	7.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	7.8E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.4E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.4E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	1.8E-05	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.6E-05	---	---	---	---	---
				Aroclor-1260	6.08E-01	mg/kg	9.5E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.9E-06	---	---	---	---	---
				Metals												
				Aluminum	9.07E+03	mg/kg	1.4E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	8.90E-01	mg/kg	1.4E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.81E+00	mg/kg	7.5E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-05	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	5.5E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.39E+04	mg/kg	2.2E-02	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.7E-02	---	---	---	---	---
				Cobalt	6.43E+00	mg/kg	1.0E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.31E+04	mg/kg	2.1E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.13E+02	mg/kg	6.5E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.85E+02	mg/kg	4.5E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.73E-01	mg/kg	2.7E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	1.90E+03	mg/kg	3.0E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	2.0E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.49E+02	mg/kg	3.9E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.43E+04	mg/kg	2.2E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								4.7E-02					---
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	6.9E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.79E-01	mg/kg	8.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	1.4E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.2E-06	---	---	---	---	---
				Benzo(a)pyrene	1.57E+00	mg/kg	1.0E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.9E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.38E+00	mg/kg	8.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.6E-07	---	---	---	---	---
				Carbazole	4.45E-01	mg/kg	2.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	3.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.3E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	7.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-06	---	---	---	---	---
				PCBs												

TABLE A-7.1j-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	8.0E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.6E-05	---	---	---	---	---
				Aroclor-1260	6.08E-01	mg/kg	4.2E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	8.4E-07	---	---	---	---	---
				Metals												
				Aluminum	9.07E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	8.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.81E+00	mg/kg	7.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	1.7E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.39E+04	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.31E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.13E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.85E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.73E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	1.90E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.49E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								6.7E-05					---
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	4.1E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.79E-01	mg/kg	5.3E-08	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	6.6E-10	mg/m3	1.1E-04	(µg/m3)-1	1.8E-10	---	---	---	---	---
				Benzo(a)pyrene	1.57E+00	mg/kg	4.6E-10	mg/m3	1.1E-03	(µg/m3)-1	1.3E-09	---	---	---	---	---
				Benzo(b)fluoranthene	1.83E+00	mg/kg	5.4E-10	mg/m3	1.1E-04	(µg/m3)-1	1.5E-10	---	---	---	---	---
				Benzo(k)fluoranthene	1.38E+00	mg/kg	4.1E-10	mg/m3	1.1E-04	(µg/m3)-1	1.1E-10	---	---	---	---	---
				Carbazole	4.45E-01	mg/kg	1.3E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.5E-10	mg/m3	1.2E-03	(µg/m3)-1	4.4E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	3.3E-10	mg/m3	1.1E-04	(µg/m3)-1	9.0E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	3.4E-09	mg/m3	5.7E-04	(µg/m3)-1	1.9E-09	---	---	---	---	---
				Aroclor-1260	6.08E-01	mg/kg	1.8E-10	mg/m3	5.7E-04	(µg/m3)-1	1.0E-10	---	---	---	---	---
				Metals												
				Aluminum	9.07E+03	mg/kg	2.7E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Antimony	8.90E-01	mg/kg	2.6E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.81E+00	mg/kg	1.4E-09	mg/m3	4.3E-03	(µg/m3)-1	6.1E-09	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	1.0E-09	mg/m3	1.8E-03	(µg/m3)-1	1.9E-09	---	---	---	---	---
				Chromium Total	1.39E+04	mg/kg	4.1E-06	mg/m3	8.4E-02	(µg/m3)-1	8.7E-04	---	---	---	---	---
				Cobalt	6.43E+00	mg/kg	1.9E-09	mg/m3	9.0E-03	(µg/m3)-1	1.7E-08	---	---	---	---	---
				Iron	1.31E+04	mg/kg	3.9E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	4.13E+02	mg/kg	1.2E-07	mg/m3	NA	---	NA	---	---	---	---	---

TABLE A-7.1j-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	8.4E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	1.73E-01	mg/kg	5.1E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Nickel	1.90E+03	mg/kg	5.6E-07	mg/m3	2.6E-04	(µg/m3)-1	1.5E-07	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.8E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.49E+02	mg/kg	7.4E-08	mg/m3	1.5E-02	(µg/m3)-1	1.1E-06	---	---	---	---	---
				Zinc	1.43E+04	mg/kg	4.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								8.7E-04					---
	Surface Soil Total										4.8E-02					---
Soil Total											4.8E-02					---
										Total of Receptor Risks Across All Media	4.8E-02			Total of Receptor Hazards Across All Media		---

TABLE A-7.1j-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	4.9E-08	mg/kg-day	NA	---	NA	1.4E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	6.3E-08	mg/kg-day	NA	---	NA	1.8E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	7.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.7E-07	2.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	5.5E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.0E-06	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	6.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.7E-07	1.8E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	4.8E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.5E-08	1.4E-06	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	1.6E-07	mg/kg-day	NA	---	NA	4.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-06	4.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	3.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-07	1.1E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	4.0E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	8.0E-06	1.1E-05	mg/kg-day	2.0E-05	mg/kg-day	0.56
				Aroclor-1260	6.08E-01	mg/kg	2.1E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.2E-07	5.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	3.2E-03	mg/kg-day	NA	---	NA	8.9E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0089
				Antimony	8.90E-01	mg/kg	3.1E-07	mg/kg-day	NA	---	NA	8.7E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0022
				Arsenic	4.81E+00	mg/kg	1.7E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.5E-06	4.7E-06	mg/kg-day	3.0E-04	mg/kg-day	0.016
				Cadmium	3.49E+00	mg/kg	1.2E-06	mg/kg-day	NA	---	NA	3.4E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0034
				Chromium Total	1.39E+04	mg/kg	4.9E-03	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.4E-03	1.4E-02	mg/kg-day	3.0E-03	mg/kg-day	4.5
				Cobalt	6.43E+00	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	6.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.021
				Iron	1.31E+04	mg/kg	4.6E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.018
				Lead	4.13E+02	mg/kg	1.4E-04	mg/kg-day	NA	---	NA	4.0E-04	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	1.0E-04	mg/kg-day	NA	---	NA	2.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0040
				Mercury	1.73E-01	mg/kg	6.0E-08	mg/kg-day	NA	---	NA	1.7E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0011
				Nickel	1.90E+03	mg/kg	6.6E-04	mg/kg-day	NA	---	NA	1.9E-03	mg/kg-day	2.0E-02	mg/kg-day	0.093
				Thallium	1.30E+00	mg/kg	4.5E-07	mg/kg-day	NA	---	NA	1.3E-06	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	8.7E-05	mg/kg-day	NA	---	NA	2.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.048
				Zinc	1.43E+04	mg/kg	5.0E-03	mg/kg-day	NA	---	NA	1.4E-02	mg/kg-day	3.0E-01	mg/kg-day	0.047
			Ingestion Total								2.5E-03					5.4
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	3.2E-08	mg/kg-day	NA	---	NA	9.0E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	4.1E-08	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	6.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.9E-07	1.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	4.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-06	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	5.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-07	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	4.1E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.0E-08	1.2E-06	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	1.3E-07	mg/kg-day	NA	---	NA	3.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.5E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.1E-06	4.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	3.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	9.2E-07	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	3.7E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.4E-06	1.0E-05	mg/kg-day	2.0E-05	mg/kg-day	0.52
				Aroclor-1260	6.08E-01	mg/kg	2.0E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.9E-07	5.5E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	3.3E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.0E-07	9.3E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0031
				Cadmium	3.49E+00	mg/kg	8.0E-09	mg/kg-day	NA	---	NA	2.3E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00090
				Chromium Total	1.39E+04	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.4E-05					0.52
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	8.2E-12	mg/m3	NA	---	NA	2.3E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	1.1E-11	mg/m3	NA	---	NA	2.9E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	1.3E-10	mg/m3	1.1E-04	(µg/m3)-1	1.4E-11	3.6E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	9.2E-11	mg/m3	1.1E-03	(µg/m3)-1	1.0E-10	2.6E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.1E-10	mg/m3	1.1E-04	(µg/m3)-1	1.2E-11	3.0E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	8.1E-11	mg/m3	1.1E-04	(µg/m3)-1	8.9E-12	2.3E-10	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	2.6E-11	mg/m3	NA	---	NA	7.3E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	2.9E-11	mg/m3	1.2E-03	(µg/m3)-1	3.5E-11	8.2E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	6.5E-11	mg/m3	1.1E-04	(µg/m3)-1	7.1E-12	1.8E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	6.8E-10	mg/m3	5.7E-04	(µg/m3)-1	3.9E-10	1.9E-09	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	3.6E-11	mg/m3	5.7E-04	(µg/m3)-1	2.0E-11	1.0E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	5.3E-07	mg/m3	NA	---	NA	1.5E-06	mg/m3	5.0E-03	mg/m3	0.00030
				Antimony	8.90E-01	mg/kg	5.2E-11	mg/m3	NA	---	NA	1.5E-10	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	2.8E-10	mg/m3	4.3E-03	(µg/m3)-1	1.2E-09	7.9E-10	mg/m3	1.5E-05	mg/m3	0.000053
				Cadmium	3.49E+00	mg/kg	2.0E-10	mg/m3	1.8E-03	(µg/m3)-1	3.7E-10	5.7E-10	mg/m3	1.0E-05	mg/m3	0.000057
				Chromium Total	1.39E+04	mg/kg	8.2E-07	mg/m3	8.4E-02	(µg/m3)-1	6.9E-05	2.3E-06	mg/m3	1.0E-04	mg/m3	0.023
				Cobalt	6.43E+00	mg/kg	3.8E-10	mg/m3	9.0E-03	(µg/m3)-1	3.4E-09	1.1E-09	mg/m3	6.0E-06	mg/m3	0.00018
				Iron	1.31E+04	mg/kg	7.7E-07	mg/m3	NA	---	NA	2.2E-06	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	2.4E-08	mg/m3	NA	---	NA	6.8E-08	mg/m3	NA	---	NA

TABLE A-7.1j-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	1.7E-08	mg/m3	NA	---	NA	4.7E-08	mg/m3	5.0E-05	mg/m3	0.00094
				Mercury	1.73E-01	mg/kg	1.0E-11	mg/m3	NA	---	NA	2.8E-11	mg/m3	3.0E-04	mg/m3	0.000000095
				Nickel	1.90E+03	mg/kg	1.1E-07	mg/m3	2.6E-04	(µg/m3)-1	2.9E-08	3.1E-07	mg/m3	9.0E-05	mg/m3	0.0035
				Thallium	1.30E+00	mg/kg	7.6E-11	mg/m3	NA	---	NA	2.1E-10	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	1.5E-08	mg/m3	1.5E-02	(µg/m3)-1	2.2E-07	4.1E-08	mg/m3	3.9E-06	mg/m3	0.010
				Zinc	1.43E+04	mg/kg	8.4E-07	mg/m3	NA	---	NA	2.4E-06	mg/m3	NA	---	NA
			Inhalation Total								6.9E-05					0.038
	Surface Soil Total										2.5E-03					5.9
Soil Total											2.5E-03					5.9
										Total of Receptor Risks Across All Media	2.5E-03				Total of Receptor Hazards Across All Media	5.9

TABLE A-7.1j-9 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	7.7E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	1.4E-08	mg/kg-day	NA	---	NA	9.8E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	1.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.8E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.7E-06	8.6E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-07	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.4E-08	7.6E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	3.5E-08	mg/kg-day	NA	---	NA	2.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	3.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.5E-07	2.7E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	8.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-07	6.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	9.0E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-06	6.3E-06	mg/kg-day	2.0E-05	mg/kg-day	0.32
				Aroclor-1260	6.08E-01	mg/kg	4.8E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	9.5E-08	3.3E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	7.1E-04	mg/kg-day	NA	---	NA	5.0E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0050
				Antimony	8.90E-01	mg/kg	7.0E-08	mg/kg-day	NA	---	NA	4.9E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0012
				Arsenic	4.81E+00	mg/kg	3.8E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	5.6E-07	2.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0088
				Cadmium	3.49E+00	mg/kg	2.7E-07	mg/kg-day	NA	---	NA	1.9E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0019
				Chromium Total	1.39E+04	mg/kg	1.1E-03	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.6E-03	7.6E-03	mg/kg-day	3.0E-03	mg/kg-day	2.5
				Cobalt	6.43E+00	mg/kg	5.0E-07	mg/kg-day	NA	---	NA	3.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.012
				Iron	1.31E+04	mg/kg	1.0E-03	mg/kg-day	NA	---	NA	7.2E-03	mg/kg-day	7.0E-01	mg/kg-day	0.010
				Lead	4.13E+02	mg/kg	3.2E-05	mg/kg-day	NA	---	NA	2.3E-04	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	2.2E-05	mg/kg-day	NA	---	NA	1.6E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0022
				Mercury	1.73E-01	mg/kg	1.4E-08	mg/kg-day	NA	---	NA	9.5E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00059
				Nickel	1.90E+03	mg/kg	1.5E-04	mg/kg-day	NA	---	NA	1.0E-03	mg/kg-day	2.0E-02	mg/kg-day	0.052
				Thallium	1.30E+00	mg/kg	1.0E-07	mg/kg-day	NA	---	NA	7.1E-07	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	1.9E-05	mg/kg-day	NA	---	NA	1.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.027
				Zinc	1.43E+04	mg/kg	1.1E-03	mg/kg-day	NA	---	NA	7.9E-03	mg/kg-day	3.0E-01	mg/kg-day	0.026
			Ingestion Total								1.6E-03					3.0
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	9.2E-09	mg/kg-day	NA	---	NA	6.4E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	1.2E-08	mg/kg-day	NA	---	NA	8.2E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	1.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.1E-07	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.9E-06	9.3E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-07	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.6E-08	8.2E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	3.8E-08	mg/kg-day	NA	---	NA	2.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	4.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.2E-07	3.0E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	9.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-07	6.6E-07	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-9 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	1.1E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.1E-06	7.4E-06	mg/kg-day	2.0E-05	mg/kg-day	0.37
				Aroclor-1260	6.08E-01	mg/kg	5.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-07	3.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	9.4E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.4E-07	6.6E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0022
				Cadmium	3.49E+00	mg/kg	2.3E-09	mg/kg-day	NA	---	NA	1.6E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00064
				Chromium Total	1.39E+04	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								7.2E-06					0.37
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	5.1E-13	mg/m3	NA	---	NA	3.6E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	6.6E-13	mg/m3	NA	---	NA	4.6E-12	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	8.1E-12	mg/m3	1.1E-04	(µg/m3)-1	2.7E-12	5.7E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	5.7E-12	mg/m3	1.1E-03	(µg/m3)-1	1.9E-11	4.0E-11	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	6.7E-12	mg/m3	1.1E-04	(µg/m3)-1	2.2E-12	4.7E-11	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	5.1E-12	mg/m3	1.1E-04	(µg/m3)-1	1.7E-12	3.5E-11	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	1.6E-12	mg/m3	NA	---	NA	1.1E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.8E-12	mg/m3	1.2E-03	(µg/m3)-1	6.5E-12	1.3E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	4.0E-12	mg/m3	1.1E-04	(µg/m3)-1	1.3E-12	2.8E-11	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	4.2E-11	mg/m3	5.7E-04	(µg/m3)-1	2.4E-11	2.9E-10	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	2.2E-12	mg/m3	5.7E-04	(µg/m3)-1	1.3E-12	1.6E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	3.3E-08	mg/m3	NA	---	NA	2.3E-07	mg/m3	5.0E-03	mg/m3	0.000046
				Antimony	8.90E-01	mg/kg	3.3E-12	mg/m3	NA	---	NA	2.3E-11	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	1.8E-11	mg/m3	4.3E-03	(µg/m3)-1	7.6E-11	1.2E-10	mg/m3	1.5E-05	mg/m3	0.0000082
				Cadmium	3.49E+00	mg/kg	1.3E-11	mg/m3	1.8E-03	(µg/m3)-1	2.3E-11	8.9E-11	mg/m3	1.0E-05	mg/m3	0.0000089
				Chromium Total	1.39E+04	mg/kg	5.1E-08	mg/m3	8.4E-02	(µg/m3)-1	1.3E-05	3.6E-07	mg/m3	1.0E-04	mg/m3	0.0036
				Cobalt	6.43E+00	mg/kg	2.4E-11	mg/m3	9.0E-03	(µg/m3)-1	2.1E-10	1.6E-10	mg/m3	6.0E-06	mg/m3	0.000027
				Iron	1.31E+04	mg/kg	4.8E-08	mg/m3	NA	---	NA	3.4E-07	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	1.5E-09	mg/m3	NA	---	NA	1.1E-08	mg/m3	NA	---	NA

TABLE A-7.1j-9 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	1.0E-09	mg/m3	NA	---	NA	7.3E-09	mg/m3	5.0E-05	mg/m3	0.00015
				Mercury	1.73E-01	mg/kg	6.3E-13	mg/m3	NA	---	NA	4.4E-12	mg/m3	3.0E-04	mg/m3	0.000000015
				Nickel	1.90E+03	mg/kg	6.9E-09	mg/m3	2.6E-04	(µg/m3)-1	1.8E-09	4.9E-08	mg/m3	9.0E-05	mg/m3	0.00054
				Thallium	1.30E+00	mg/kg	4.8E-12	mg/m3	NA	---	NA	3.3E-11	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	9.1E-10	mg/m3	1.5E-02	(µg/m3)-1	1.4E-08	6.4E-09	mg/m3	3.9E-06	mg/m3	0.0016
				Zinc	1.43E+04	mg/kg	5.3E-08	mg/m3	NA	---	NA	3.7E-07	mg/m3	NA	---	NA
			Inhalation Total								1.3E-05					0.0060
	Surface Soil Total										1.7E-03					3.4
Soil Total											1.7E-03					3.4
Sediment	Sediment	Sediment at Risk Area J	Ingestion	PAHs												
				Benzo(a)anthracene	6.90E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	mg/kg-day	2.7E-07	8.7E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.20E+00	mg/kg	1.3E-07	mg/kg-day	7.3E+00	mg/kg-day	2.8E-06	9.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.10E+01	mg/kg	2.0E-07	mg/kg-day	7.3E-01	mg/kg-day	4.4E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	6.10E+00	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	7.7E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.30E+00	mg/kg	6.0E-08	mg/kg-day	7.3E-02	mg/kg-day	1.3E-08	4.2E-07	mg/kg-day	NA	---	NA
				Carbazole	2.70E+00	mg/kg	4.9E-08	mg/kg-day	NA	---	NA	3.4E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.30E+00	mg/kg	2.3E-08	mg/kg-day	7.3E+00	mg/kg-day	5.1E-07	1.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	6.30E+00	mg/kg	1.1E-07	mg/kg-day	7.3E-01	mg/kg-day	2.5E-07	8.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.80E+00	mg/kg	3.3E-08	mg/kg-day	2.0E+00	mg/kg-day	6.5E-08	2.3E-07	mg/kg-day	2.0E-05	mg/kg-day	0.011
				Aroclor-1260	2.90E+00	mg/kg	5.2E-08	mg/kg-day	2.0E+00	mg/kg-day	1.0E-07	3.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.10E+04	mg/kg	2.0E-04	mg/kg-day	NA	---	NA	1.4E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0014
				Arsenic	1.60E+00	mg/kg	2.9E-08	mg/kg-day	1.5E+00	mg/kg-day	4.3E-08	2.0E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00067
				Chromium Total	2.90E+02	mg/kg	5.2E-06	mg/kg-day	5.0E-01	mg/kg-day	7.9E-06	3.7E-05	mg/kg-day	3.0E-03	mg/kg-day	0.012
				Cobalt	1.20E+01	mg/kg	2.2E-07	mg/kg-day	NA	---	NA	1.5E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0051
				Iron	2.00E+04	mg/kg	3.6E-04	mg/kg-day	NA	---	NA	2.5E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0036
				Lead	5.00E+02	mg/kg	9.0E-06	mg/kg-day	NA	---	NA	6.3E-05	mg/kg-day	NA	---	NA
				Manganese	5.70E+02	mg/kg	1.0E-05	mg/kg-day	NA	---	NA	7.2E-05	mg/kg-day	7.0E-02	mg/kg-day	0.0010
				Mercury	7.20E-01	mg/kg	1.3E-08	mg/kg-day	NA	---	NA	9.1E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00057
				Vanadium	9.20E+01	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	1.2E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0023
			Ingestion Total								1.2E-05					0.038
			Dermal	PAHs												
				Benzo(a)anthracene	6.90E+00	mg/kg	1.4E-07	mg/kg-day	7.3E-01	mg/kg-day	3.0E-07	9.5E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.20E+00	mg/kg	1.4E-07	mg/kg-day	7.3E+00	mg/kg-day	3.1E-06	9.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.10E+01	mg/kg	2.2E-07	mg/kg-day	7.3E-01	mg/kg-day	4.7E-07	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	6.10E+00	mg/kg	1.2E-07	mg/kg-day	NA	---	NA	8.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.30E+00	mg/kg	6.5E-08	mg/kg-day	7.3E-02	mg/kg-day	1.4E-08	4.5E-07	mg/kg-day	NA	---	NA
				Carbazole	2.70E+00	mg/kg	5.3E-08	mg/kg-day	NA	---	NA	3.7E-07	mg/kg-day	NA	---	NA

TABLE A-7.1j-9 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Sediment at Risk Area J	Dermal	Dibenz(a,h)anthracene	1.30E+00	mg/kg	2.6E-08	mg/kg-day	7.3E+00	mg/kg-day	5.6E-07	1.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	6.30E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	mg/kg-day	2.7E-07	8.7E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.80E+00	mg/kg	3.8E-08	mg/kg-day	2.0E+00	mg/kg-day	7.6E-08	2.7E-07	mg/kg-day	2.0E-05	mg/kg-day	0.013
				Aroclor-1260	2.90E+00	mg/kg	6.1E-08	mg/kg-day	2.0E+00	mg/kg-day	1.2E-07	4.3E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.10E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	1.60E+00	mg/kg	7.3E-09	mg/kg-day	1.5E+00	mg/kg-day	1.1E-08	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00017
				Chromium Total	2.90E+02	mg/kg	NA	mg/kg-day	1.3E-02	mg/kg-day	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	1.20E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	2.00E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	5.00E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	5.70E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	9.20E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.9E-06					0.014
Sediment Total											1.7E-05					0.052
Surface Water	Surface Water	Surface Water at Risk Area J	Dermal	PAHs												
				Benzo(a)anthracene	6.00E-02	µg/L	1.2E-07	mg/kg-day	7.3E-01	mg/kg-day	2.6E-07	8.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-02	µg/L	2.4E-07	mg/kg-day	7.3E+00	mg/kg-day	5.2E-06	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.10E-01	µg/L	3.8E-07	mg/kg-day	7.3E-01	mg/kg-day	8.3E-07	2.7E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.00E-02	µg/L	2.4E-07	mg/kg-day	7.3E-01	mg/kg-day	5.3E-07	1.7E-06	mg/kg-day	NA	---	NA
				Metals												
				Arsenic	1.41E+00	µg/L	2.1E-09	mg/kg-day	1.5E+00	mg/kg-day	3.2E-09	1.5E-08	mg/kg-day	3.0E-04	mg/kg-day	0.000050
				Cadmium	2.34E+00	µg/L	3.5E-09	mg/kg-day	NA	---	NA	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00099
				Chromium Total	2.16E+01	µg/L	6.5E-08	mg/kg-day	1.3E-02	mg/kg-day	2.4E-09	4.6E-07	mg/kg-day	7.5E-05	mg/kg-day	0.0061
				Cobalt	3.10E+00	µg/L	4.7E-09	mg/kg-day	NA	---	NA	3.3E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00011
				Iron	4.71E+04	µg/L	7.1E-05	mg/kg-day	NA	---	NA	5.0E-04	mg/kg-day	7.0E-01	mg/kg-day	0.00071
				Lead	3.53E+01	µg/L	5.3E-08	mg/kg-day	NA	---	NA	3.7E-07	mg/kg-day	NA	---	NA
				Manganese	1.02E+03	µg/L	1.5E-06	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	9.6E-04	mg/kg-day	0.011
				Mercury	3.30E-01	µg/L	5.0E-10	mg/kg-day	NA	---	NA	3.5E-09	mg/kg-day	1.6E-04	mg/kg-day	0.000022
				Vanadium	2.62E+01	µg/L	4.0E-08	mg/kg-day	NA	---	NA	2.8E-07	mg/kg-day	1.3E-04	mg/kg-day	0.0021
			Dermal Total								6.8E-06					0.021
Surface Water Total											6.8E-06					0.021
										Total of Receptor Risks Across All Media	1.7E-03				Total of Receptor Hazards Across All Media	3.5

TABLE A-7.2j-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	1.4E-09	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	1.4E-09	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	1.4E-09	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	2.2E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00045
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	4.5E-11	mg/kg-day	1.0E-09	mg/kg-day	0.045
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	2.0E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	4.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	3.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	3.1E-06	mg/kg-day	2.0E-05	mg/kg-day	0.16
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	3.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	1.2E-02	mg/kg-day	1.0E+00	mg/kg-day	0.012
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	4.0E-04	mg/kg-day	0.0033
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	6.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.021
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	4.8E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0048
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	5.2E-03	mg/kg-day	3.0E-03	mg/kg-day	1.7
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	9.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.031
				Iron	1.47E+04	mg/kg	---	---	---	---	---	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.029
				Lead	4.79E+02	mg/kg	---	---	---	---	---	6.6E-04	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	3.7E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0052
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0047
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	7.6E-04	mg/kg-day	2.0E-02	mg/kg-day	0.038
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	2.2E-04	mg/kg-day	5.0E-03	mg/kg-day	0.044
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	5.9E-03	mg/kg-day	3.0E-01	mg/kg-day	0.020
			Ingestion Total								---					2.2
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	8.9E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00018
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	7.7E-08	mg/kg-day	NA	---	NA

TABLE A-7.2j-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	8.0E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	5.3E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0053
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	8.7E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	7.1E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	2.0E-05	mg/kg-day	0.088
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	2.0E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	7.7E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0026
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	1.9E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00076
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.097
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.1E-11	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.0E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	2.2E-14	mg/m3	4.0E-08	mg/m3	0.00000056
				PAHs												

TABLE A-7.2j-1 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	9.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.6E-09	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	6.2E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	6.6E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	3.2E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	2.6E-06	mg/m3	1.0E-04	mg/m3	0.026
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	4.7E-09	mg/m3	6.0E-06	mg/m3	0.00078
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	3.3E-07	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	3.8E-07	mg/m3	9.0E-05	mg/m3	0.0043
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	1.1E-07	mg/m3	3.9E-06	mg/m3	0.028
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	3.0E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.065
	Aggregate Soil Total										---					2.3
Soil Total											---					2.3
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	2.3

TABLE A-7.2j-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	1.3E-08	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	1.3E-08	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	1.3E-08	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	5.0E-05	mg/kg-day	0.0042
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.9E-06	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	4.2E-10	mg/kg-day	1.0E-09	mg/kg-day	0.42
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	2.0E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	1.6E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	1.8E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	4.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	3.6E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	1.3E-05	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	2.9E-05	mg/kg-day	2.0E-05	mg/kg-day	1.5
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	3.4E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	1.1E-01	mg/kg-day	1.0E+00	mg/kg-day	0.11
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	4.0E-04	mg/kg-day	0.031
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	6.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.20
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	4.5E-05	mg/kg-day	1.0E-03	mg/kg-day	0.045
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	4.9E-02	mg/kg-day	3.0E-03	mg/kg-day	16
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	8.6E-05	mg/kg-day	3.0E-04	mg/kg-day	0.29
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.9E-01	mg/kg-day	7.0E-01	mg/kg-day	0.27
				Lead	4.79E+02	mg/kg	---	---	---	---	---	6.1E-03	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	3.4E-03	mg/kg-day	7.0E-02	mg/kg-day	0.049
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	7.1E-06	mg/kg-day	1.6E-04	mg/kg-day	0.044
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	7.1E-03	mg/kg-day	2.0E-02	mg/kg-day	0.35
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	2.0E-03	mg/kg-day	5.0E-03	mg/kg-day	0.41
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	5.5E-02	mg/kg-day	3.0E-01	mg/kg-day	0.18
			Ingestion Total								---					20
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	5.8E-08	mg/kg-day	5.0E-05	mg/kg-day	0.0012
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	5.0E-07	mg/kg-day	NA	---	NA

TABLE A-7.2j-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	5.3E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	3.5E-11	mg/kg-day	1.0E-09	mg/kg-day	0.035
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	7.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	5.7E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	6.6E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	5.0E-06	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	4.6E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	2.0E-05	mg/kg-day	0.58
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	5.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.017
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	2.5E-05	mg/kg-day	0.0050
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.63
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.1E-11	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.0E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	2.2E-14	mg/m3	4.0E-08	mg/m3	0.00000056
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA

TABLE A-7.2j-2 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	9.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.6E-09	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	6.2E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	6.6E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	3.2E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	2.6E-06	mg/m3	1.0E-04	mg/m3	0.026
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	4.7E-09	mg/m3	6.0E-06	mg/m3	0.00078
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	3.3E-07	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	3.8E-07	mg/m3	9.0E-05	mg/m3	0.0043
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	1.1E-07	mg/m3	3.9E-06	mg/m3	0.028
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	3.0E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.065
	Aggregate Soil Total										---					21
Soil Total											---					21
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	21

TABLE A-7.2j-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				sec-Butylbenzene	1.00E-03	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Cymene	1.00E-03	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dieldrin	1.63E-02	mg/kg	2.6E-08	mg/kg-day	1.6E+01	(mg/kg-day)-1	4.1E-07	---	---	---	---	---
				Dimethyl phthalate	1.40E-01	mg/kg	2.2E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.47E-01	mg/kg	2.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	5.1E-11	mg/kg-day	1.3E+05	(mg/kg-day)-1	6.6E-06	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	2.4E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.6E-06	---	---	---	---	---
				Benzo(a)pyrene	1.23E+00	mg/kg	1.9E-06	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.0E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.43E+00	mg/kg	2.2E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.0E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.07E+00	mg/kg	1.7E-06	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.2E-07	---	---	---	---	---
				Carbazole	3.10E-01	mg/kg	4.9E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	4.4E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.4E-05	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	1.6E-06	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.9E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	3.6E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.2E-06	---	---	---	---	---
				Aroclor-1260	2.67E-01	mg/kg	4.2E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	8.4E-07	---	---	---	---	---
				Metals												
				Aluminum	8.98E+03	mg/kg	1.4E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	9.56E-01	mg/kg	1.5E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.70E+00	mg/kg	7.4E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-05	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	5.5E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	3.82E+03	mg/kg	6.0E-03	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.3E-02	---	---	---	---	---
				Cobalt	6.74E+00	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	2.3E-02	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.79E+02	mg/kg	7.5E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.68E+02	mg/kg	4.2E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.52E-01	mg/kg	8.6E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	5.55E+02	mg/kg	8.7E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.11E+00	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	1.60E+02	mg/kg	2.5E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	4.30E+03	mg/kg	6.7E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.3E-02					---
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dieldrin	1.63E-02	mg/kg	8.1E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.3E-07	---	---	---	---	---
				Dimethyl phthalate	1.40E-01	mg/kg	6.9E-08	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.2j-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	7.3E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	4.8E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	6.3E-07	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	9.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.9E-06	---	---	---	---	---
				Benzo(a)pyrene	1.23E+00	mg/kg	7.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.43E+00	mg/kg	9.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.07E+00	mg/kg	6.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.0E-07	---	---	---	---	---
				Carbazole	3.10E-01	mg/kg	2.0E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.8E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.3E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	6.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	1.6E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.2E-06	---	---	---	---	---
				Aroclor-1260	2.67E-01	mg/kg	1.8E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.7E-07	---	---	---	---	---
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.70E+00	mg/kg	7.0E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.0E-06	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	1.7E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.1E-05					---
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	1.0E-08	mg/m3	NA	---	NA	---	---	---	---	---
				sec-Butylbenzene	1.00E-03	mg/kg	4.1E-04	mg/m3	NA	---	NA	---	---	---	---	---
				Cymene	1.00E-03	mg/kg	4.1E-04	mg/m3	NA	---	NA	---	---	---	---	---
				Dieldrin	1.63E-02	mg/kg	4.8E-09	mg/m3	4.6E-03	(µg/m3)-1	2.2E-08	---	---	---	---	---
				Dimethyl phthalate	1.40E-01	mg/kg	4.1E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.47E-01	mg/kg	4.3E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	9.6E-12	mg/m3	3.8E+01	(µg/m3)-1	3.7E-07	---	---	---	---	---
				PAHs												

TABLE A-7.2j-3 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	4.6E-10	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	---	---	---	---	---
				Benzo(a)pyrene	1.23E+00	mg/kg	3.6E-10	mg/m3	1.1E-03	(µg/m3)-1	1.0E-09	---	---	---	---	---
				Benzo(b)fluoranthene	1.43E+00	mg/kg	4.2E-10	mg/m3	1.1E-04	(µg/m3)-1	1.2E-10	---	---	---	---	---
				Benzo(k)fluoranthene	1.07E+00	mg/kg	3.2E-10	mg/m3	1.1E-04	(µg/m3)-1	8.7E-11	---	---	---	---	---
				Carbazole	3.10E-01	mg/kg	9.2E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	8.4E-11	mg/m3	1.2E-03	(µg/m3)-1	2.5E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	3.0E-10	mg/m3	1.1E-04	(µg/m3)-1	8.2E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	6.8E-10	mg/m3	5.7E-04	(µg/m3)-1	3.9E-10	---	---	---	---	---
				Aroclor-1260	2.67E-01	mg/kg	7.9E-11	mg/m3	5.7E-04	(µg/m3)-1	4.5E-11	---	---	---	---	---
				Metals												
				Aluminum	8.98E+03	mg/kg	2.7E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Antimony	9.56E-01	mg/kg	2.8E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.70E+00	mg/kg	1.4E-09	mg/m3	4.3E-03	(µg/m3)-1	6.0E-09	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	1.0E-09	mg/m3	1.8E-03	(µg/m3)-1	1.9E-09	---	---	---	---	---
				Chromium Total	3.82E+03	mg/kg	1.1E-06	mg/m3	8.4E-02	(µg/m3)-1	2.4E-04	---	---	---	---	---
				Cobalt	6.74E+00	mg/kg	2.0E-09	mg/m3	9.0E-03	(µg/m3)-1	1.8E-08	---	---	---	---	---
				Iron	1.47E+04	mg/kg	4.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	4.79E+02	mg/kg	1.4E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.68E+02	mg/kg	7.9E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	5.52E-01	mg/kg	1.6E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Nickel	5.55E+02	mg/kg	1.6E-07	mg/m3	2.6E-04	(µg/m3)-1	4.3E-08	---	---	---	---	---
				Thallium	1.11E+00	mg/kg	3.3E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	1.60E+02	mg/kg	4.7E-08	mg/m3	1.5E-02	(µg/m3)-1	7.1E-07	---	---	---	---	---
				Zinc	4.30E+03	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								2.4E-04					---
	Aggregate Soil Total										1.3E-02					---
Soil Total											1.3E-02					---
										Total of Receptor Risks Across All Media	1.3E-02				Total of Receptor Hazards Across All Media	---

TABLE A-7.2j-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	3.1E-10	mg/kg-day	NA	---	NA	8.8E-10	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	3.1E-10	mg/kg-day	NA	---	NA	8.8E-10	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	3.1E-10	mg/kg-day	NA	---	NA	8.8E-10	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	5.1E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	8.2E-08	1.4E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00029
				Dimethyl phthalate	1.40E-01	mg/kg	4.4E-08	mg/kg-day	NA	---	NA	1.2E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	4.6E-08	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.0E-11	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.3E-06	2.9E-11	mg/kg-day	1.0E-09	mg/kg-day	0.029
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	4.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.5E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	3.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.8E-06	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	4.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-07	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	3.4E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.5E-08	9.4E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	9.7E-08	mg/kg-day	NA	---	NA	2.7E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	8.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.5E-07	2.5E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	3.1E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-07	8.8E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	7.2E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.4E-06	2.0E-06	mg/kg-day	2.0E-05	mg/kg-day	0.10
				Aroclor-1260	2.67E-01	mg/kg	8.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.7E-07	2.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	2.8E-03	mg/kg-day	NA	---	NA	7.9E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0079
				Antimony	9.56E-01	mg/kg	3.0E-07	mg/kg-day	NA	---	NA	8.4E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0021
				Arsenic	4.70E+00	mg/kg	1.5E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.2E-06	4.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.014
				Cadmium	3.49E+00	mg/kg	1.1E-06	mg/kg-day	NA	---	NA	3.1E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0031
				Chromium Total	3.82E+03	mg/kg	1.2E-03	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.0E-04	3.4E-03	mg/kg-day	3.0E-03	mg/kg-day	1.1
				Cobalt	6.74E+00	mg/kg	2.1E-06	mg/kg-day	NA	---	NA	5.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.020
				Iron	1.47E+04	mg/kg	4.6E-03	mg/kg-day	NA	---	NA	1.3E-02	mg/kg-day	7.0E-01	mg/kg-day	0.018
				Lead	4.79E+02	mg/kg	1.5E-04	mg/kg-day	NA	---	NA	4.2E-04	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	8.4E-05	mg/kg-day	NA	---	NA	2.4E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0034
				Mercury	5.52E-01	mg/kg	1.7E-07	mg/kg-day	NA	---	NA	4.9E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0030
				Nickel	5.55E+02	mg/kg	1.7E-04	mg/kg-day	NA	---	NA	4.9E-04	mg/kg-day	2.0E-02	mg/kg-day	0.024
				Thallium	1.11E+00	mg/kg	3.5E-07	mg/kg-day	NA	---	NA	9.8E-07	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	5.0E-05	mg/kg-day	NA	---	NA	1.4E-04	mg/kg-day	5.0E-03	mg/kg-day	0.028
				Zinc	4.30E+03	mg/kg	1.4E-03	mg/kg-day	NA	---	NA	3.8E-03	mg/kg-day	3.0E-01	mg/kg-day	0.013
			Ingestion Total								6.1E-04					1.4
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	3.4E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	5.4E-08	9.5E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00019
				Dimethyl phthalate	1.40E-01	mg/kg	2.9E-08	mg/kg-day	NA	---	NA	8.1E-08	mg/kg-day	NA	---	NA

TABLE A-7.2j-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	3.1E-08	mg/kg-day	NA	---	NA	8.5E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	2.0E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.6E-07	5.7E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0057
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	4.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.0E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	3.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.4E-06	9.3E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	3.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.8E-07	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	2.9E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.1E-08	8.1E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	8.4E-08	mg/kg-day	NA	---	NA	2.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	7.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.6E-07	2.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	2.7E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-07	7.5E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	6.7E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.3E-06	1.9E-06	mg/kg-day	2.0E-05	mg/kg-day	0.094
				Aroclor-1260	2.67E-01	mg/kg	7.8E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.6E-07	2.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	2.9E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.4E-07	8.2E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0027
				Cadmium	3.49E+00	mg/kg	7.2E-09	mg/kg-day	NA	---	NA	2.0E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00081
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								6.0E-06					0.10
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	2.0E-09	mg/m3	NA	---	NA	5.7E-09	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	7.4E-05	mg/m3	NA	---	NA	2.1E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	7.4E-05	mg/m3	NA	---	NA	2.1E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	8.6E-13	mg/m3	4.6E-03	(µg/m3)-1	4.0E-12	2.4E-12	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	7.4E-12	mg/m3	NA	---	NA	2.1E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	7.8E-12	mg/m3	NA	---	NA	2.2E-11	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.7E-15	mg/m3	3.8E+01	(µg/m3)-1	6.5E-11	4.8E-15	mg/m3	4.0E-08	mg/m3	0.00000012
				PAHs												

TABLE A-7.2j-5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	8.2E-11	mg/m3	1.1E-04	(µg/m3)-1	9.0E-12	2.3E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	6.5E-11	mg/m3	1.1E-03	(µg/m3)-1	7.1E-11	1.8E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	7.5E-11	mg/m3	1.1E-04	(µg/m3)-1	8.3E-12	2.1E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	5.6E-11	mg/m3	1.1E-04	(µg/m3)-1	6.2E-12	1.6E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	1.6E-11	mg/m3	NA	---	NA	4.6E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.5E-11	mg/m3	1.2E-03	(µg/m3)-1	1.8E-11	4.2E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	5.3E-11	mg/m3	1.1E-04	(µg/m3)-1	5.8E-12	1.5E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	1.2E-10	mg/m3	5.7E-04	(µg/m3)-1	6.9E-11	3.4E-10	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	1.4E-11	mg/m3	5.7E-04	(µg/m3)-1	8.1E-12	4.0E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	4.7E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00027
				Antimony	9.56E-01	mg/kg	5.0E-11	mg/m3	NA	---	NA	1.4E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	2.5E-10	mg/m3	4.3E-03	(µg/m3)-1	1.1E-09	6.9E-10	mg/m3	1.5E-05	mg/m3	0.000046
				Cadmium	3.49E+00	mg/kg	1.8E-10	mg/m3	1.8E-03	(µg/m3)-1	3.3E-10	5.2E-10	mg/m3	1.0E-05	mg/m3	0.000052
				Chromium Total	3.82E+03	mg/kg	2.0E-07	mg/m3	8.4E-02	(µg/m3)-1	1.7E-05	5.7E-07	mg/m3	1.0E-04	mg/m3	0.0057
				Cobalt	6.74E+00	mg/kg	3.6E-10	mg/m3	9.0E-03	(µg/m3)-1	3.2E-09	1.0E-09	mg/m3	6.0E-06	mg/m3	0.00017
				Iron	1.47E+04	mg/kg	7.7E-07	mg/m3	NA	---	NA	2.2E-06	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	2.5E-08	mg/m3	NA	---	NA	7.1E-08	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	1.4E-08	mg/m3	NA	---	NA	4.0E-08	mg/m3	5.0E-05	mg/m3	0.00079
				Mercury	5.52E-01	mg/kg	2.9E-11	mg/m3	NA	---	NA	8.2E-11	mg/m3	3.0E-04	mg/m3	0.00000027
				Nickel	5.55E+02	mg/kg	2.9E-08	mg/m3	2.6E-04	(µg/m3)-1	7.6E-09	8.2E-08	mg/m3	9.0E-05	mg/m3	0.00091
				Thallium	1.11E+00	mg/kg	5.9E-11	mg/m3	NA	---	NA	1.6E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	8.5E-09	mg/m3	1.5E-02	(µg/m3)-1	1.3E-07	2.4E-08	mg/m3	3.9E-06	mg/m3	0.0060
				Zinc	4.30E+03	mg/kg	2.3E-07	mg/m3	NA	---	NA	6.4E-07	mg/m3	NA	---	NA
			Inhalation Total								1.7E-05					0.014
	Aggregate Soil Total										6.3E-04					1.5
Soil Total											6.3E-04					1.5
										Total of Receptor Risks Across All Media	6.3E-04				Total of Receptor Hazards Across All Media	1.5

TABLE A-7.2j-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	3.5E-10	mg/kg-day	NA	---	NA	9.8E-10	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	3.5E-10	mg/kg-day	NA	---	NA	9.8E-10	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	3.5E-10	mg/kg-day	NA	---	NA	9.8E-10	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	5.7E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	9.1E-08	1.6E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00032
				Dimethyl phthalate	1.40E-01	mg/kg	4.9E-08	mg/kg-day	NA	---	NA	1.4E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	5.1E-08	mg/kg-day	NA	---	NA	1.4E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.1E-11	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.5E-06	3.2E-11	mg/kg-day	1.0E-09	mg/kg-day	0.032
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	5.4E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.9E-07	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	4.3E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-06	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	5.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-07	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	3.7E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.7E-08	1.0E-06	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	3.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	9.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.2E-07	2.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	3.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-07	9.8E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	8.0E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.6E-06	2.2E-06	mg/kg-day	2.0E-05	mg/kg-day	0.11
				Aroclor-1260	2.67E-01	mg/kg	9.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.9E-07	2.6E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	3.1E-03	mg/kg-day	NA	---	NA	8.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0088
				Antimony	9.56E-01	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	9.4E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0023
				Arsenic	4.70E+00	mg/kg	1.6E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	2.5E-06	4.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Cadmium	3.49E+00	mg/kg	1.2E-06	mg/kg-day	NA	---	NA	3.4E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0034
				Chromium Total	3.82E+03	mg/kg	1.3E-03	mg/kg-day	5.0E-01	(mg/kg-day)-1	6.7E-04	3.7E-03	mg/kg-day	3.0E-03	mg/kg-day	1.2
				Cobalt	6.74E+00	mg/kg	2.4E-06	mg/kg-day	NA	---	NA	6.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.022
				Iron	1.47E+04	mg/kg	5.1E-03	mg/kg-day	NA	---	NA	1.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.020
				Lead	4.79E+02	mg/kg	1.7E-04	mg/kg-day	NA	---	NA	4.7E-04	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	9.4E-05	mg/kg-day	NA	---	NA	2.6E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0037
				Mercury	5.52E-01	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	5.4E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0034
				Nickel	5.55E+02	mg/kg	1.9E-04	mg/kg-day	NA	---	NA	5.4E-04	mg/kg-day	2.0E-02	mg/kg-day	0.027
				Thallium	1.11E+00	mg/kg	3.9E-07	mg/kg-day	NA	---	NA	1.1E-06	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	5.6E-05	mg/kg-day	NA	---	NA	1.6E-04	mg/kg-day	5.0E-03	mg/kg-day	0.031
				Zinc	4.30E+03	mg/kg	1.5E-03	mg/kg-day	NA	---	NA	4.2E-03	mg/kg-day	3.0E-01	mg/kg-day	0.014
			Ingestion Total								6.8E-04					1.5
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	3.8E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	6.0E-08	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00021
				Dimethyl phthalate	1.40E-01	mg/kg	3.2E-08	mg/kg-day	NA	---	NA	9.0E-08	mg/kg-day	NA	---	NA

TABLE A-7.2j-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	3.4E-08	mg/kg-day	NA	---	NA	9.5E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	2.2E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.9E-07	6.3E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0063
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.4E-07	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	3.7E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.7E-06	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	4.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-07	1.2E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	3.2E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.3E-08	9.0E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	9.3E-08	mg/kg-day	NA	---	NA	2.6E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	8.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.2E-07	2.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	3.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-07	8.4E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	7.4E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.5E-06	2.1E-06	mg/kg-day	2.0E-05	mg/kg-day	0.10
				Aroclor-1260	2.67E-01	mg/kg	8.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.7E-07	2.4E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	3.2E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.9E-07	9.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0030
				Cadmium	3.49E+00	mg/kg	8.1E-09	mg/kg-day	NA	---	NA	2.3E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00090
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								6.7E-06					0.11
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	2.3E-09	mg/m3	NA	---	NA	6.4E-09	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	8.2E-05	mg/m3	NA	---	NA	2.3E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	8.2E-05	mg/m3	NA	---	NA	2.3E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	9.6E-13	mg/m3	4.6E-03	(µg/m3)-1	4.4E-12	2.7E-12	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	8.2E-12	mg/m3	NA	---	NA	2.3E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	8.6E-12	mg/m3	NA	---	NA	2.4E-11	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.9E-15	mg/m3	3.8E+01	(µg/m3)-1	7.3E-11	5.3E-15	mg/m3	4.0E-08	mg/m3	0.00000013
				PAHs												

TABLE A-7.2j-6 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	9.1E-11	mg/m3	1.1E-04	(µg/m3)-1	1.0E-11	2.5E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	7.2E-11	mg/m3	1.1E-03	(µg/m3)-1	7.9E-11	2.0E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	8.4E-11	mg/m3	1.1E-04	(µg/m3)-1	9.2E-12	2.3E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	6.3E-11	mg/m3	1.1E-04	(µg/m3)-1	6.9E-12	1.8E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	1.8E-11	mg/m3	NA	---	NA	5.1E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.7E-11	mg/m3	1.2E-03	(µg/m3)-1	2.0E-11	4.7E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	5.9E-11	mg/m3	1.1E-04	(µg/m3)-1	6.5E-12	1.6E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	1.3E-10	mg/m3	5.7E-04	(µg/m3)-1	7.7E-11	3.8E-10	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	1.6E-11	mg/m3	5.7E-04	(µg/m3)-1	9.0E-12	4.4E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	5.3E-07	mg/m3	NA	---	NA	1.5E-06	mg/m3	5.0E-03	mg/m3	0.00030
				Antimony	9.56E-01	mg/kg	5.6E-11	mg/m3	NA	---	NA	1.6E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	2.8E-10	mg/m3	4.3E-03	(µg/m3)-1	1.2E-09	7.7E-10	mg/m3	1.5E-05	mg/m3	0.000051
				Cadmium	3.49E+00	mg/kg	2.1E-10	mg/m3	1.8E-03	(µg/m3)-1	3.7E-10	5.7E-10	mg/m3	1.0E-05	mg/m3	0.000057
				Chromium Total	3.82E+03	mg/kg	2.2E-07	mg/m3	8.4E-02	(µg/m3)-1	1.9E-05	6.3E-07	mg/m3	1.0E-04	mg/m3	0.0063
				Cobalt	6.74E+00	mg/kg	4.0E-10	mg/m3	9.0E-03	(µg/m3)-1	3.6E-09	1.1E-09	mg/m3	6.0E-06	mg/m3	0.00018
				Iron	1.47E+04	mg/kg	8.6E-07	mg/m3	NA	---	NA	2.4E-06	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	2.8E-08	mg/m3	NA	---	NA	7.9E-08	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	1.6E-08	mg/m3	NA	---	NA	4.4E-08	mg/m3	5.0E-05	mg/m3	0.00088
				Mercury	5.52E-01	mg/kg	3.2E-11	mg/m3	NA	---	NA	9.1E-11	mg/m3	3.0E-04	mg/m3	0.00000030
				Nickel	5.55E+02	mg/kg	3.3E-08	mg/m3	2.6E-04	(µg/m3)-1	8.5E-09	9.1E-08	mg/m3	9.0E-05	mg/m3	0.0010
				Thallium	1.11E+00	mg/kg	6.5E-11	mg/m3	NA	---	NA	1.8E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	9.4E-09	mg/m3	1.5E-02	(µg/m3)-1	1.4E-07	2.6E-08	mg/m3	3.9E-06	mg/m3	0.0067
				Zinc	4.30E+03	mg/kg	2.5E-07	mg/m3	NA	---	NA	7.1E-07	mg/m3	NA	---	NA
			Inhalation Total								1.9E-05					0.015
	Aggregate Soil Total										7.0E-04					1.7
Soil Total											7.0E-04					1.7
										Total of Receptor Risks Across All Media	7.0E-04				Total of Receptor Hazards Across All Media	1.7

TABLE A-7.2j-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	2.4E-11	mg/kg-day	NA	---	NA	1.7E-09	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	2.4E-11	mg/kg-day	NA	---	NA	1.7E-09	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	2.4E-11	mg/kg-day	NA	---	NA	1.7E-09	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	3.9E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	6.3E-09	2.7E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00055
				Dimethyl phthalate	1.40E-01	mg/kg	3.4E-09	mg/kg-day	NA	---	NA	2.4E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	3.5E-09	mg/kg-day	NA	---	NA	2.5E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	7.8E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.0E-07	5.5E-11	mg/kg-day	1.0E-09	mg/kg-day	0.055
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-08	2.6E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	2.9E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.1E-07	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	3.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.5E-08	2.4E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	2.6E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.9E-09	1.8E-06	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	7.4E-09	mg/kg-day	NA	---	NA	5.2E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	6.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.0E-08	4.8E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	2.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.7E-08	1.7E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	5.5E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-07	3.9E-06	mg/kg-day	2.0E-05	mg/kg-day	0.19
				Aroclor-1260	2.67E-01	mg/kg	6.4E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.3E-08	4.5E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	2.2E-04	mg/kg-day	NA	---	NA	1.5E-02	mg/kg-day	1.0E+00	mg/kg-day	0.015
				Antimony	9.56E-01	mg/kg	2.3E-08	mg/kg-day	NA	---	NA	1.6E-06	mg/kg-day	4.0E-04	mg/kg-day	0.0040
				Arsenic	4.70E+00	mg/kg	1.1E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.7E-07	7.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.026
				Cadmium	3.49E+00	mg/kg	8.4E-08	mg/kg-day	NA	---	NA	5.9E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0059
				Chromium Total	3.82E+03	mg/kg	9.2E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	4.6E-05	6.4E-03	mg/kg-day	3.0E-03	mg/kg-day	2.1
				Cobalt	6.74E+00	mg/kg	1.6E-07	mg/kg-day	NA	---	NA	1.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.038
				Iron	1.47E+04	mg/kg	3.5E-04	mg/kg-day	NA	---	NA	2.5E-02	mg/kg-day	7.0E-01	mg/kg-day	0.035
				Lead	4.79E+02	mg/kg	1.1E-05	mg/kg-day	NA	---	NA	8.0E-04	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	6.4E-06	mg/kg-day	NA	---	NA	4.5E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0064
				Mercury	5.52E-01	mg/kg	1.3E-08	mg/kg-day	NA	---	NA	9.3E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0058
				Nickel	5.55E+02	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	9.3E-04	mg/kg-day	2.0E-02	mg/kg-day	0.047
				Thallium	1.11E+00	mg/kg	2.7E-08	mg/kg-day	NA	---	NA	1.9E-06	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	3.8E-06	mg/kg-day	NA	---	NA	2.7E-04	mg/kg-day	5.0E-03	mg/kg-day	0.053
				Zinc	4.30E+03	mg/kg	1.0E-04	mg/kg-day	NA	---	NA	7.2E-03	mg/kg-day	3.0E-01	mg/kg-day	0.024
			Ingestion Total								4.7E-05					2.6
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	1.2E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.9E-09	8.2E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00016
				Dimethyl phthalate	1.40E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	7.1E-08	mg/kg-day	NA	---	NA

TABLE A-7.2j-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	1.1E-09	mg/kg-day	NA	---	NA	7.4E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	7.0E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	9.1E-09	4.9E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0049
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-08	1.0E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	1.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.4E-08	8.0E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.7E-09	9.3E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	7.3E-10	7.0E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	2.9E-09	mg/kg-day	NA	---	NA	2.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	2.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.9E-08	1.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	9.3E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.8E-09	6.5E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.6E-08	1.6E-06	mg/kg-day	2.0E-05	mg/kg-day	0.081
				Aroclor-1260	2.67E-01	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.4E-09	1.9E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.5E-08	7.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0024
				Cadmium	3.49E+00	mg/kg	2.5E-10	mg/kg-day	NA	---	NA	1.8E-08	mg/kg-day	2.5E-05	mg/kg-day	0.00070
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								2.1E-07					0.089
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	2.4E-10	mg/m3	NA	---	NA	1.7E-08	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	1.7E-06	mg/m3	NA	---	NA	1.2E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	1.7E-06	mg/m3	NA	---	NA	1.2E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	2.0E-11	mg/m3	4.6E-03	(µg/m3)-1	9.2E-11	1.4E-09	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	1.7E-10	mg/m3	NA	---	NA	1.2E-08	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	1.8E-10	mg/m3	NA	---	NA	1.3E-08	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	4.0E-14	mg/m3	3.8E+01	(µg/m3)-1	1.5E-09	2.8E-12	mg/m3	4.0E-08	mg/m3	0.000069
				PAHs												

TABLE A-7.2j-8 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	1.9E-09	mg/m3	1.1E-04	(µg/m3)-1	2.1E-10	1.3E-07	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	1.5E-09	mg/m3	1.1E-03	(µg/m3)-1	1.6E-09	1.0E-07	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	1.7E-09	mg/m3	1.1E-04	(µg/m3)-1	1.9E-10	1.2E-07	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	1.3E-09	mg/m3	1.1E-04	(µg/m3)-1	1.4E-10	9.1E-08	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	3.8E-10	mg/m3	NA	---	NA	2.6E-08	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	3.5E-10	mg/m3	1.2E-03	(µg/m3)-1	4.1E-10	2.4E-08	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	1.2E-09	mg/m3	1.1E-04	(µg/m3)-1	1.3E-10	8.5E-08	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	2.8E-09	mg/m3	5.7E-04	(µg/m3)-1	1.6E-09	2.0E-07	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	3.3E-10	mg/m3	5.7E-04	(µg/m3)-1	1.9E-10	2.3E-08	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	1.1E-05	mg/m3	NA	---	NA	7.7E-04	mg/m3	5.0E-03	mg/m3	0.15
				Antimony	9.56E-01	mg/kg	1.2E-09	mg/m3	NA	---	NA	8.2E-08	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	5.7E-09	mg/m3	4.3E-03	(µg/m3)-1	2.5E-08	4.0E-07	mg/m3	1.5E-05	mg/m3	0.027
				Cadmium	3.49E+00	mg/kg	4.3E-09	mg/m3	1.8E-03	(µg/m3)-1	7.7E-09	3.0E-07	mg/m3	1.0E-05	mg/m3	0.030
				Chromium Total	3.82E+03	mg/kg	4.7E-06	mg/m3	8.4E-02	(µg/m3)-1	3.9E-04	3.3E-04	mg/m3	1.0E-04	mg/m3	3.3
				Cobalt	6.74E+00	mg/kg	8.2E-09	mg/m3	9.0E-03	(µg/m3)-1	7.4E-08	5.8E-07	mg/m3	6.0E-06	mg/m3	0.096
				Iron	1.47E+04	mg/kg	1.8E-05	mg/m3	NA	---	NA	1.3E-03	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	5.9E-07	mg/m3	NA	---	NA	4.1E-05	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	3.3E-07	mg/m3	NA	---	NA	2.3E-05	mg/m3	5.0E-05	mg/m3	0.46
				Mercury	5.52E-01	mg/kg	6.7E-10	mg/m3	NA	---	NA	4.7E-08	mg/m3	3.0E-04	mg/m3	0.00016
				Nickel	5.55E+02	mg/kg	6.8E-07	mg/m3	2.6E-04	(µg/m3)-1	1.8E-07	4.7E-05	mg/m3	9.0E-05	mg/m3	0.53
				Thallium	1.11E+00	mg/kg	1.4E-09	mg/m3	NA	---	NA	9.5E-08	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	2.0E-07	mg/m3	1.5E-02	(µg/m3)-1	2.9E-06	1.4E-05	mg/m3	5.6E-05	mg/m3	0.24
				Zinc	4.30E+03	mg/kg	5.2E-06	mg/m3	NA	---	NA	3.7E-04	mg/m3	NA	---	NA
			Inhalation Total								4.0E-04					4.8
	Aggregate Soil Total										4.4E-04					7.5
Soil Total											4.4E-04					7.5
										Total of Receptor Risks Across All Media	4.4E-04				Total of Receptor Hazards Across All Media	7.5

TABLE A-7.1j-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.6E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	9.5E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	3.0E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.5E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	7.9E-06	mg/kg-day	2.0E-05	mg/kg-day	0.39
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	4.2E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	6.2E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0062
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	6.1E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0015
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	3.3E-06	mg/kg-day	3.0E-04	mg/kg-day	0.011
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0024
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	9.5E-03	mg/kg-day	3.0E-03	mg/kg-day	3.2
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	4.4E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Iron	1.31E+04	mg/kg	---	---	---	---	---	9.0E-03	mg/kg-day	7.0E-01	mg/kg-day	0.013
				Lead	4.13E+02	mg/kg	---	---	---	---	---	2.8E-04	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	2.0E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0028
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	1.6E-04	mg/kg-day	0.00074
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	1.3E-03	mg/kg-day	2.0E-02	mg/kg-day	0.065
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	1.7E-04	mg/kg-day	5.0E-03	mg/kg-day	0.034
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	9.8E-03	mg/kg-day	3.0E-01	mg/kg-day	0.033
			Ingestion Total								---					3.8
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.1E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.4E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	2.3E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	4.5E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	5.0E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	2.0E-05	mg/kg-day	0.063
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	6.6E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00038
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.7E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00011
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.063
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	9.5E-10	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	3.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	7.9E-09	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	4.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	6.3E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	9.6E-06	mg/m3	1.0E-04	mg/m3	0.096
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00074
				Iron	1.31E+04	mg/kg	---	---	---	---	---	9.1E-06	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	2.9E-07	mg/m3	NA	---	NA

TABLE A-7.1j-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	3.0E-04	mg/m3	0.00000040
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	1.3E-06	mg/m3	9.0E-05	mg/m3	0.015
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	1.7E-07	mg/m3	3.9E-06	mg/m3	0.044
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.16
	Surface Soil Total										---					4.0
Soil Total											---					4.0
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	4.0

TABLE A-7.1j-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.4E-05	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.0E-05	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	8.8E-06	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	2.8E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.2E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.0E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	7.4E-05	mg/kg-day	2.0E-05	mg/kg-day	3.7
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	3.9E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	5.8E-02	mg/kg-day	1.0E+00	mg/kg-day	0.058
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	5.7E-06	mg/kg-day	4.0E-04	mg/kg-day	0.014
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	3.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.10
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.2E-05	mg/kg-day	1.0E-03	mg/kg-day	0.022
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	8.9E-02	mg/kg-day	3.0E-03	mg/kg-day	30
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	4.1E-05	mg/kg-day	3.0E-04	mg/kg-day	0.14
				Iron	1.31E+04	mg/kg	---	---	---	---	---	8.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.12
				Lead	4.13E+02	mg/kg	---	---	---	---	---	2.6E-03	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	1.8E-03	mg/kg-day	7.0E-02	mg/kg-day	0.026
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	1.6E-04	mg/kg-day	0.0069
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	1.2E-02	mg/kg-day	2.0E-02	mg/kg-day	0.61
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	8.3E-06	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	1.6E-03	mg/kg-day	5.0E-03	mg/kg-day	0.32
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	9.2E-02	mg/kg-day	3.0E-01	mg/kg-day	0.31
			Ingestion Total								---					35
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.3E-07	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	2.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.5E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	4.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	4.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	1.2E-05	mg/kg-day	2.0E-05	mg/kg-day	0.58
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	6.1E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0034
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0010
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.58
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	---	---	---	---	---	1.5E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	---	---	---	---	---	1.3E-09	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	---	---	---	---	---	9.5E-10	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	---	---	---	---	---	3.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	---	---	---	---	---	3.4E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	---	---	---	---	---	7.9E-09	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	---	---	---	---	---	4.2E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	---	---	---	---	---	6.3E-06	mg/m3	5.0E-03	mg/m3	0.0013
				Antimony	8.90E-01	mg/kg	---	---	---	---	---	6.1E-10	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	---	---	---	---	---	3.3E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	1.39E+04	mg/kg	---	---	---	---	---	9.6E-06	mg/m3	1.0E-04	mg/m3	0.096
				Cobalt	6.43E+00	mg/kg	---	---	---	---	---	4.4E-09	mg/m3	6.0E-06	mg/m3	0.00074
				Iron	1.31E+04	mg/kg	---	---	---	---	---	9.1E-06	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	---	---	---	---	---	2.9E-07	mg/m3	NA	---	NA

TABLE A-7.1j-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	---	---	---	---	---	2.0E-07	mg/m3	5.0E-05	mg/m3	0.0039
				Mercury	1.73E-01	mg/kg	---	---	---	---	---	1.2E-10	mg/m3	3.0E-04	mg/m3	0.00000040
				Nickel	1.90E+03	mg/kg	---	---	---	---	---	1.3E-06	mg/m3	9.0E-05	mg/m3	0.015
				Thallium	1.30E+00	mg/kg	---	---	---	---	---	9.0E-10	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	---	---	---	---	---	1.7E-07	mg/m3	3.9E-06	mg/m3	0.044
				Zinc	1.43E+04	mg/kg	---	---	---	---	---	9.9E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.16
	Surface Soil Total										---					36
Soil Total											---					36
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	36

TABLE A-7.1j-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	3.5E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.79E-01	mg/kg	4.5E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	5.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-06	---	---	---	---	---
				Benzo(a)pyrene	1.57E+00	mg/kg	3.9E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.83E+00	mg/kg	4.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.38E+00	mg/kg	3.5E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.1E-07	---	---	---	---	---
				Carbazole	4.45E-01	mg/kg	1.1E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.2E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.4E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	2.8E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	2.9E-06	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.8E-06	---	---	---	---	---
				Aroclor-1260	6.08E-01	mg/kg	1.5E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.1E-07	---	---	---	---	---
				Metals												
				Aluminum	9.07E+03	mg/kg	2.3E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	8.90E-01	mg/kg	2.2E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.81E+00	mg/kg	1.2E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.8E-06	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	8.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.39E+04	mg/kg	3.5E-03	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.4E-02	---	---	---	---	---
				Cobalt	6.43E+00	mg/kg	1.6E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.31E+04	mg/kg	3.3E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.13E+02	mg/kg	1.0E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.85E+02	mg/kg	7.2E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.73E-01	mg/kg	4.3E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	1.90E+03	mg/kg	4.8E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	3.3E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.49E+02	mg/kg	6.3E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.43E+04	mg/kg	3.6E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								1.4E-02					---
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	4.0E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.79E-01	mg/kg	5.1E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	8.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.8E-07	---	---	---	---	---
				Benzo(a)pyrene	1.57E+00	mg/kg	5.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.83E+00	mg/kg	6.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-07	---	---	---	---	---
				Benzo(k)fluoranthene	1.38E+00	mg/kg	5.1E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.0E-08	---	---	---	---	---
				Carbazole	4.45E-01	mg/kg	1.6E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.4E-07	---	---	---	---	---
				PCBs												

TABLE A-7.1j-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	4.6E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	9.1E-07	---	---	---	---	---
				Aroclor-1260	6.08E-01	mg/kg	2.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.8E-08	---	---	---	---	---
				Metals												
				Aluminum	9.07E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	8.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.81E+00	mg/kg	4.1E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.1E-08	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	9.9E-10	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	1.39E+04	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.31E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.13E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.85E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	1.73E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	1.90E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	2.49E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								6.6E-06					---
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	1.2E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.79E-01	mg/kg	1.6E-08	mg/m3	NA	---	NA	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	2.0E-10	mg/m3	1.1E-04	(µg/m3)-1	9.8E-11	---	---	---	---	---
				Benzo(a)pyrene	1.57E+00	mg/kg	1.4E-10	mg/m3	1.1E-03	(µg/m3)-1	6.9E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.6E-10	mg/m3	1.1E-04	(µg/m3)-1	8.1E-11	---	---	---	---	---
				Benzo(k)fluoranthene	1.38E+00	mg/kg	1.2E-10	mg/m3	1.1E-04	(µg/m3)-1	6.1E-11	---	---	---	---	---
				Carbazole	4.45E-01	mg/kg	4.0E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	4.4E-11	mg/m3	1.2E-03	(µg/m3)-1	2.4E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	9.8E-11	mg/m3	1.1E-04	(µg/m3)-1	4.9E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	1.0E-09	mg/m3	5.7E-04	(µg/m3)-1	5.8E-10	---	---	---	---	---
				Aroclor-1260	6.08E-01	mg/kg	5.4E-11	mg/m3	5.7E-04	(µg/m3)-1	3.1E-11	---	---	---	---	---
				Metals												
				Aluminum	9.07E+03	mg/kg	8.0E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Antimony	8.90E-01	mg/kg	7.9E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.81E+00	mg/kg	4.3E-10	mg/m3	4.3E-03	(µg/m3)-1	1.8E-09	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	3.1E-10	mg/m3	1.8E-03	(µg/m3)-1	5.6E-10	---	---	---	---	---
				Chromium Total	1.39E+04	mg/kg	1.2E-06	mg/m3	8.4E-02	(µg/m3)-1	4.7E-04	---	---	---	---	---
				Cobalt	6.43E+00	mg/kg	5.7E-10	mg/m3	9.0E-03	(µg/m3)-1	5.1E-09	---	---	---	---	---
				Iron	1.31E+04	mg/kg	1.2E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	4.13E+02	mg/kg	3.7E-08	mg/m3	NA	---	NA	---	---	---	---	---

TABLE A-7.1j-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	2.5E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	1.73E-01	mg/kg	1.5E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Nickel	1.90E+03	mg/kg	1.7E-07	mg/m3	2.6E-04	(µg/m3)-1	4.4E-08	---	---	---	---	---
				Thallium	1.30E+00	mg/kg	1.2E-10	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	2.49E+02	mg/kg	2.2E-08	mg/m3	1.5E-02	(µg/m3)-1	3.3E-07	---	---	---	---	---
				Zinc	1.43E+04	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								4.7E-04					---
	Surface Soil Total										1.5E-02					---
Soil Total											1.5E-02					---
										Total of Receptor Risks Across All Media	1.5E-02				Total of Receptor Hazards Across All Media	---

TABLE A-7.1j-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	7.7E-09	mg/kg-day	NA	---	NA	6.0E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	9.9E-09	mg/kg-day	NA	---	NA	7.7E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	1.2E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.9E-08	9.5E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	8.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.3E-07	6.7E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.0E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.4E-08	7.9E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	7.6E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	5.6E-09	5.9E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	2.5E-08	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	2.7E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-07	2.1E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	6.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.4E-08	4.7E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	6.3E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.3E-06	4.9E-06	mg/kg-day	2.0E-05	mg/kg-day	0.25
				Aroclor-1260	6.08E-01	mg/kg	3.4E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.7E-08	2.6E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	5.0E-04	mg/kg-day	NA	---	NA	3.9E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0039
				Antimony	8.90E-01	mg/kg	4.9E-08	mg/kg-day	NA	---	NA	3.8E-07	mg/kg-day	4.0E-04	mg/kg-day	0.00095
				Arsenic	4.81E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	4.0E-07	2.1E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0069
				Cadmium	3.49E+00	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	1.5E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0015
				Chromium Total	1.39E+04	mg/kg	7.7E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.8E-04	6.0E-03	mg/kg-day	3.0E-03	mg/kg-day	2.0
				Cobalt	6.43E+00	mg/kg	3.5E-07	mg/kg-day	NA	---	NA	2.8E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0092
				Iron	1.31E+04	mg/kg	7.2E-04	mg/kg-day	NA	---	NA	5.6E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0080
				Lead	4.13E+02	mg/kg	2.3E-05	mg/kg-day	NA	---	NA	1.8E-04	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	1.6E-05	mg/kg-day	NA	---	NA	1.2E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0017
				Mercury	1.73E-01	mg/kg	9.5E-09	mg/kg-day	NA	---	NA	7.4E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00046
				Nickel	1.90E+03	mg/kg	1.0E-04	mg/kg-day	NA	---	NA	8.1E-04	mg/kg-day	2.0E-02	mg/kg-day	0.041
				Thallium	1.30E+00	mg/kg	7.2E-08	mg/kg-day	NA	---	NA	5.6E-07	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	1.4E-05	mg/kg-day	NA	---	NA	1.1E-04	mg/kg-day	5.0E-03	mg/kg-day	0.021
				Zinc	1.43E+04	mg/kg	7.9E-04	mg/kg-day	NA	---	NA	6.1E-03	mg/kg-day	3.0E-01	mg/kg-day	0.020
			Ingestion Total								3.9E-04					2.4
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	7.9E-09	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	1.3E-09	mg/kg-day	NA	---	NA	1.0E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	2.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-08	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	1.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.1E-07	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-08	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	9.5E-10	1.0E-07	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	4.2E-09	mg/kg-day	NA	---	NA	3.3E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	4.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.4E-08	3.6E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.6E-09	8.1E-08	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	1.2E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.3E-07	9.1E-07	mg/kg-day	2.0E-05	mg/kg-day	0.046
				Aroclor-1260	6.08E-01	mg/kg	6.2E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.2E-08	4.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.6E-08	8.2E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00027
				Cadmium	3.49E+00	mg/kg	2.5E-10	mg/kg-day	NA	---	NA	2.0E-09	mg/kg-day	2.5E-05	mg/kg-day	0.000079
				Chromium Total	1.39E+04	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								4.4E-07					0.046
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	2.6E-12	mg/m3	NA	---	NA	2.0E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	3.3E-12	mg/m3	NA	---	NA	2.6E-11	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	4.1E-11	mg/m3	1.1E-04	(µg/m3)-1	4.5E-12	3.2E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	2.9E-11	mg/m3	1.1E-03	(µg/m3)-1	3.2E-11	2.3E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	3.4E-11	mg/m3	1.1E-04	(µg/m3)-1	3.7E-12	2.6E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	2.6E-11	mg/m3	1.1E-04	(µg/m3)-1	2.8E-12	2.0E-10	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	8.2E-12	mg/m3	NA	---	NA	6.4E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	9.2E-12	mg/m3	1.2E-03	(µg/m3)-1	1.1E-11	7.1E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	2.0E-11	mg/m3	1.1E-04	(µg/m3)-1	2.2E-12	1.6E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	2.1E-10	mg/m3	5.7E-04	(µg/m3)-1	1.2E-10	1.7E-09	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	1.1E-11	mg/m3	5.7E-04	(µg/m3)-1	6.4E-12	8.8E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	1.7E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00026
				Antimony	8.90E-01	mg/kg	1.6E-11	mg/m3	NA	---	NA	1.3E-10	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	8.9E-11	mg/m3	4.3E-03	(µg/m3)-1	3.8E-10	6.9E-10	mg/m3	1.5E-05	mg/m3	0.000046
				Cadmium	3.49E+00	mg/kg	6.5E-11	mg/m3	1.8E-03	(µg/m3)-1	1.2E-10	5.0E-10	mg/m3	1.0E-05	mg/m3	0.000050
				Chromium Total	1.39E+04	mg/kg	2.6E-07	mg/m3	8.4E-02	(µg/m3)-1	2.2E-05	2.0E-06	mg/m3	1.0E-04	mg/m3	0.020
				Cobalt	6.43E+00	mg/kg	1.2E-10	mg/m3	9.0E-03	(µg/m3)-1	1.1E-09	9.3E-10	mg/m3	6.0E-06	mg/m3	0.00015
				Iron	1.31E+04	mg/kg	2.4E-07	mg/m3	NA	---	NA	1.9E-06	mg/m3	NA	---	NA
				Lead	4.13E+02	mg/kg	7.6E-09	mg/m3	NA	---	NA	5.9E-08	mg/m3	NA	---	NA

TABLE A-7.1j-6 CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J

WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Manganese	2.85E+02	mg/kg	5.3E-09	mg/m3	NA	---	NA	4.1E-08	mg/m3	5.0E-05	mg/m3	0.00082
				Mercury	1.73E-01	mg/kg	3.2E-12	mg/m3	NA	---	NA	2.5E-11	mg/m3	3.0E-04	mg/m3	0.000000083
				Nickel	1.90E+03	mg/kg	3.5E-08	mg/m3	2.6E-04	(µg/m3)-1	9.1E-09	2.7E-07	mg/m3	9.0E-05	mg/m3	0.0030
				Thallium	1.30E+00	mg/kg	2.4E-11	mg/m3	NA	---	NA	1.9E-10	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	4.6E-09	mg/m3	1.5E-02	(µg/m3)-1	6.9E-08	3.6E-08	mg/m3	3.9E-06	mg/m3	0.0092
				Zinc	1.43E+04	mg/kg	2.7E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
			Inhalation Total								2.2E-05					0.034
	Surface Soil Total										4.1E-04					2.4
Soil Total											4.1E-04					2.4
Total of Receptor Risks Across All Media											4.1E-04	Total of Receptor Hazards Across All Media				2.4

TABLE A-7.1j-9 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Ingestion	Dimethyl phthalate	1.40E-01	mg/kg	1.3E-09	mg/kg-day	NA	---	NA	8.9E-09	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	1.1E-08	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	2.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.4E-08	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-07	9.9E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.6E-08	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.7E-09	8.7E-08	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	4.0E-09	mg/kg-day	NA	---	NA	2.8E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	4.5E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	9.8E-08	3.1E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	9.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-08	7.0E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	1.0E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.1E-07	7.3E-07	mg/kg-day	2.0E-05	mg/kg-day	0.036
				Aroclor-1260	6.08E-01	mg/kg	5.5E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-08	3.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	8.2E-05	mg/kg-day	NA	---	NA	5.7E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00057
				Antimony	8.90E-01	mg/kg	8.0E-09	mg/kg-day	NA	---	NA	5.6E-08	mg/kg-day	4.0E-04	mg/kg-day	0.00014
				Arsenic	4.81E+00	mg/kg	4.3E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.5E-08	3.0E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0010
				Cadmium	3.49E+00	mg/kg	3.2E-08	mg/kg-day	NA	---	NA	2.2E-07	mg/kg-day	1.0E-03	mg/kg-day	0.00022
				Chromium Total	1.39E+04	mg/kg	1.3E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.9E-04	8.8E-04	mg/kg-day	3.0E-03	mg/kg-day	0.29
				Cobalt	6.43E+00	mg/kg	5.8E-08	mg/kg-day	NA	---	NA	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0014
				Iron	1.31E+04	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	8.3E-04	mg/kg-day	7.0E-01	mg/kg-day	0.0012
				Lead	4.13E+02	mg/kg	3.7E-06	mg/kg-day	NA	---	NA	2.6E-05	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	2.6E-06	mg/kg-day	NA	---	NA	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00026
				Mercury	1.73E-01	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	1.1E-08	mg/kg-day	1.6E-04	mg/kg-day	0.000068
				Nickel	1.90E+03	mg/kg	1.7E-05	mg/kg-day	NA	---	NA	1.2E-04	mg/kg-day	2.0E-02	mg/kg-day	0.0060
				Thallium	1.30E+00	mg/kg	1.2E-08	mg/kg-day	NA	---	NA	8.2E-08	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	2.2E-06	mg/kg-day	NA	---	NA	1.6E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0031
				Zinc	1.43E+04	mg/kg	1.3E-04	mg/kg-day	NA	---	NA	9.1E-04	mg/kg-day	3.0E-01	mg/kg-day	0.0030
			Ingestion Total								1.9E-04					0.35
			Dermal	Dimethyl phthalate	1.40E-01	mg/kg	4.2E-10	mg/kg-day	NA	---	NA	3.0E-09	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	5.4E-10	mg/kg-day	NA	---	NA	3.8E-09	mg/kg-day	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	8.7E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-08	6.1E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	6.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-07	4.3E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	7.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-08	5.0E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	5.4E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.2E-09	3.8E-08	mg/kg-day	NA	---	NA
				Carbazole	4.45E-01	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.3E-08	1.4E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	4.3E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.5E-09	3.0E-08	mg/kg-day	NA	---	NA
				PCBs												

TABLE A-7.1j-9 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Dermal	Aroclor-1254	1.15E+01	mg/kg	4.9E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	9.7E-08	3.4E-07	mg/kg-day	2.0E-05	mg/kg-day	0.017
				Aroclor-1260	6.08E-01	mg/kg	2.6E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.1E-09	1.8E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	8.90E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.81E+00	mg/kg	4.4E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.5E-09	3.1E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00010
				Cadmium	3.49E+00	mg/kg	1.1E-10	mg/kg-day	NA	---	NA	7.4E-10	mg/kg-day	2.5E-05	mg/kg-day	0.000030
				Chromium Total	1.39E+04	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.43E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.31E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.13E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.85E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	1.73E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	1.90E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.30E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	2.49E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	1.43E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								3.3E-07					0.017
			Inhalation	Dimethyl phthalate	1.40E-01	mg/kg	5.9E-14	mg/m3	NA	---	NA	4.1E-13	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.79E-01	mg/kg	7.6E-14	mg/m3	NA	---	NA	5.3E-13	mg/m3	NA	---	NA
				PAHs												
				Benzo(a)anthracene	2.22E+00	mg/kg	9.4E-13	mg/m3	1.1E-04	(µg/m3)-1	3.1E-13	6.6E-12	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.57E+00	mg/kg	6.6E-13	mg/m3	1.1E-03	(µg/m3)-1	2.2E-12	4.6E-12	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.83E+00	mg/kg	7.8E-13	mg/m3	1.1E-04	(µg/m3)-1	2.5E-13	5.4E-12	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.38E+00	mg/kg	5.8E-13	mg/m3	1.1E-04	(µg/m3)-1	1.9E-13	4.1E-12	mg/m3	NA	---	NA
				Carbazole	4.45E-01	mg/kg	1.9E-13	mg/m3	NA	---	NA	1.3E-12	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	4.96E-01	mg/kg	2.1E-13	mg/m3	1.2E-03	(µg/m3)-1	7.5E-13	1.5E-12	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	1.10E+00	mg/kg	4.6E-13	mg/m3	1.1E-04	(µg/m3)-1	1.5E-13	3.3E-12	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	1.15E+01	mg/kg	4.9E-12	mg/m3	5.7E-04	(µg/m3)-1	2.8E-12	3.4E-11	mg/m3	NA	---	NA
				Aroclor-1260	6.08E-01	mg/kg	2.6E-13	mg/m3	5.7E-04	(µg/m3)-1	1.5E-13	1.8E-12	mg/m3	NA	---	NA
				Metals												
				Aluminum	9.07E+03	mg/kg	3.8E-09	mg/m3	NA	---	NA	2.7E-08	mg/m3	5.0E-03	mg/m3	0.0000054
				Antimony	8.90E-01	mg/kg	3.8E-13	mg/m3	NA	---	NA	2.6E-12	mg/m3	NA	---	NA
				Arsenic	4.81E+00	mg/kg	2.0E-12	mg/m3	4.3E-03	(µg/m3)-1	8.7E-12	1.4E-11	mg/m3	1.5E-05	mg/m3	0.00000095
				Cadmium	3.49E+00	mg/kg	1.5E-12	mg/m3	1.8E-03	(µg/m3)-1	2.7E-12	1.0E-11	mg/m3	1.0E-05	mg/m3	0.0000010
				Chromium Total	1.39E+04	mg/kg	5.9E-09	mg/m3	8.4E-02	(µg/m3)-1	1.5E-06	4.1E-08	mg/m3	1.0E-04	mg/m3	0.00041
				Cobalt	6.43E+00	mg/kg	2.7E-12	mg/m3	9.0E-03	(µg/m3)-1	2.4E-11	1.9E-11	mg/m3	6.0E-06	mg/m3	0.0000032
				Iron	1.31E+04	mg/kg	5.6E-09	mg/m3	NA	---	NA	3.9E-08	mg/m3	NA	---	NA

TABLE A-7.1j-9 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	Surface Soil at Risk Area J	Inhalation	Lead	4.13E+02	mg/kg	1.7E-10	mg/m3	NA	---	NA	1.2E-09	mg/m3	NA	---	NA
				Manganese	2.85E+02	mg/kg	1.2E-10	mg/m3	NA	---	NA	8.4E-10	mg/m3	5.0E-05	mg/m3	0.000017
				Mercury	1.73E-01	mg/kg	7.3E-14	mg/m3	NA	---	NA	5.1E-13	mg/m3	3.0E-04	mg/m3	0.0000000017
				Nickel	1.90E+03	mg/kg	8.0E-10	mg/m3	2.6E-04	(µg/m3)-1	2.1E-10	5.6E-09	mg/m3	9.0E-05	mg/m3	0.000062
				Thallium	1.30E+00	mg/kg	5.5E-13	mg/m3	NA	---	NA	3.8E-12	mg/m3	NA	---	NA
				Vanadium	2.49E+02	mg/kg	1.1E-10	mg/m3	1.5E-02	(µg/m3)-1	1.6E-09	7.4E-10	mg/m3	3.9E-06	mg/m3	0.00019
				Zinc	1.43E+04	mg/kg	6.1E-09	mg/m3	NA	---	NA	4.2E-08	mg/m3	NA	---	NA
			Inhalation Total								1.5E-06					0.00069
	Surface Soil Total										1.9E-04					0.36
Soil Total											1.9E-04					0.36
Sediment	Sediment	Sediment at Risk Area J	Ingestion	PAHs												
				Benzo(a)anthracene	6.90E+00	mg/kg	3.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.8E-08	2.2E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.20E+00	mg/kg	3.3E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	7.1E-07	2.3E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.10E+01	mg/kg	5.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-07	3.5E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	6.10E+00	mg/kg	2.8E-08	mg/kg-day	NA	---	NA	1.9E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.30E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	3.3E-09	1.0E-07	mg/kg-day	NA	---	NA
				Carbazole	2.70E+00	mg/kg	1.2E-08	mg/kg-day	NA	---	NA	8.5E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.30E+00	mg/kg	5.9E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-07	4.1E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	6.30E+00	mg/kg	2.8E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.2E-08	2.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.80E+00	mg/kg	8.1E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.6E-08	5.7E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0028
				Aroclor-1260	2.90E+00	mg/kg	1.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.6E-08	9.2E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.10E+04	mg/kg	5.0E-05	mg/kg-day	NA	---	NA	3.5E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00035
				Arsenic	1.60E+00	mg/kg	7.2E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-08	5.1E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00017
				Chromium Total	2.90E+02	mg/kg	1.3E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.0E-06	9.2E-06	mg/kg-day	3.0E-03	mg/kg-day	0.0031
				Cobalt	1.20E+01	mg/kg	5.4E-08	mg/kg-day	NA	---	NA	3.8E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0013
				Iron	2.00E+04	mg/kg	9.0E-05	mg/kg-day	NA	---	NA	6.3E-04	mg/kg-day	7.0E-01	mg/kg-day	0.00090
				Lead	5.00E+02	mg/kg	2.3E-06	mg/kg-day	NA	---	NA	1.6E-05	mg/kg-day	NA	---	NA
				Manganese	5.70E+02	mg/kg	2.6E-06	mg/kg-day	NA	---	NA	1.8E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00026
				Mercury	7.20E-01	mg/kg	3.3E-09	mg/kg-day	NA	---	NA	2.3E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00014
				Vanadium	9.20E+01	mg/kg	4.2E-07	mg/kg-day	NA	---	NA	2.9E-06	mg/kg-day	5.0E-03	mg/kg-day	0.00058
			Ingestion Total								3.1E-06					0.0096
			Dermal	PAHs												
				Benzo(a)anthracene	6.90E+00	mg/kg	1.4E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.0E-08	9.5E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.20E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.1E-07	9.9E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.10E+01	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.7E-08	1.5E-07	mg/kg-day	NA	---	NA
				Benzo(g,h,i)perylene	6.10E+00	mg/kg	1.2E-08	mg/kg-day	NA	---	NA	8.4E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	3.30E+00	mg/kg	6.5E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.4E-09	4.5E-08	mg/kg-day	NA	---	NA

TABLE A-7.1j-9 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Sediment	Sediment	Sediment at Risk Area J	Dermal	Carbazole	2.70E+00	mg/kg	5.3E-09	mg/kg-day	NA	---	NA	3.7E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	1.30E+00	mg/kg	2.6E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.6E-08	1.8E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	6.30E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.7E-08	8.7E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	1.80E+00	mg/kg	3.8E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.6E-09	2.7E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0013
				Aroclor-1260	2.90E+00	mg/kg	6.1E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.2E-08	4.3E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	1.10E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Arsenic	1.60E+00	mg/kg	7.3E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.1E-09	5.1E-09	mg/kg-day	3.0E-04	mg/kg-day	0.000017
				Chromium Total	2.90E+02	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	1.20E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	2.00E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	5.00E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	5.70E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	7.20E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Vanadium	9.20E+01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
			Dermal Total								4.9E-07					0.0014
Sediment Total											3.6E-06					0.011
Surface Water	Surface Water	Surface Water at Risk Area J	Dermal	PAHs												
				Benzo(a)anthracene	6.00E-02	µg/L	4.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.2E-08	2.9E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	7.00E-02	µg/L	8.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.8E-06	5.9E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.10E-01	µg/L	1.3E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.9E-07	9.4E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	7.00E-02	µg/L	8.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.9E-07	6.0E-07	mg/kg-day	NA	---	NA
				Metals												
				Arsenic	1.41E+00	µg/L	5.3E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.0E-10	3.7E-09	mg/kg-day	3.0E-04	mg/kg-day	0.000012
				Cadmium	2.34E+00	µg/L	8.8E-10	mg/kg-day	NA	---	NA	6.2E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00025
				Chromium Total	2.16E+01	µg/L	1.6E-08	mg/kg-day	1.3E-02	(mg/kg-day)-1	6.1E-10	1.1E-07	mg/kg-day	7.5E-05	mg/kg-day	0.0015
				Cobalt	3.10E+00	µg/L	1.2E-09	mg/kg-day	NA	---	NA	8.2E-09	mg/kg-day	3.0E-04	mg/kg-day	0.000027
				Iron	4.71E+04	µg/L	1.8E-05	mg/kg-day	NA	---	NA	1.2E-04	mg/kg-day	7.0E-01	mg/kg-day	0.00018
				Lead	3.53E+01	µg/L	1.3E-08	mg/kg-day	NA	---	NA	9.3E-08	mg/kg-day	NA	---	NA
				Manganese	1.02E+03	µg/L	3.9E-07	mg/kg-day	NA	---	NA	2.7E-06	mg/kg-day	9.6E-04	mg/kg-day	0.0028
				Mercury	3.30E-01	µg/L	1.2E-10	mg/kg-day	NA	---	NA	8.7E-10	mg/kg-day	1.6E-04	mg/kg-day	0.0000055
				Vanadium	2.62E+01	µg/L	9.9E-09	mg/kg-day	NA	---	NA	6.9E-08	mg/kg-day	1.3E-04	mg/kg-day	0.00053
			Dermal Total								2.4E-06					0.0053
Surface Water Total											2.4E-06					0.0053
										Total of Receptor Risks Across All Media	2.0E-04				Total of Receptor Hazards Across All Media	0.38

TABLE A-7.2j-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	6.8E-10	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	6.8E-10	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	6.8E-10	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.1E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00022
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.6E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	2.2E-11	mg/kg-day	1.0E-09	mg/kg-day	0.022
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	8.4E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	9.8E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	7.3E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.1E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	1.9E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	6.8E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.6E-06	mg/kg-day	2.0E-05	mg/kg-day	0.079
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.8E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	6.2E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0062
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	6.5E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0016
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	3.2E-06	mg/kg-day	3.0E-04	mg/kg-day	0.011
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0024
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	2.6E-03	mg/kg-day	3.0E-03	mg/kg-day	0.87
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	4.6E-06	mg/kg-day	3.0E-04	mg/kg-day	0.015
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-02	mg/kg-day	7.0E-01	mg/kg-day	0.014
				Lead	4.79E+02	mg/kg	---	---	---	---	---	3.3E-04	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	1.8E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0026
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	3.8E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0024
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	3.8E-04	mg/kg-day	2.0E-02	mg/kg-day	0.019
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	7.6E-07	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	1.1E-04	mg/kg-day	5.0E-03	mg/kg-day	0.022
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	2.9E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0098
			Ingestion Total								---					1.1
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.3E-09	mg/kg-day	5.0E-05	mg/kg-day	0.000025
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.1E-08	mg/kg-day	NA	---	NA

TABLE A-7.2j-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.1E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	7.6E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00076
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	3.1E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	2.5E-07	mg/kg-day	2.0E-05	mg/kg-day	0.013
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	2.9E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.00037
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.7E-09	mg/kg-day	2.5E-05	mg/kg-day	0.00011
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.014
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.1E-11	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.0E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	2.2E-14	mg/m3	4.0E-08	mg/m3	0.00000056
				PAHs												

TABLE A-7.2j-1 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	9.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.6E-09	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	6.2E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	6.6E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	3.2E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	2.6E-06	mg/m3	1.0E-04	mg/m3	0.026
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	4.7E-09	mg/m3	6.0E-06	mg/m3	0.00078
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	3.3E-07	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	3.8E-07	mg/m3	9.0E-05	mg/m3	0.0043
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	1.1E-07	mg/m3	3.9E-06	mg/m3	0.028
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	3.0E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.065
	Aggregate Soil Total										---					1.2
Soil Total											---					1.2
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	1.2

TABLE A-7.2j-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	6.4E-09	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	6.4E-09	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	6.4E-09	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	5.0E-05	mg/kg-day	0.0021
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	8.9E-07	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	9.4E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	2.1E-10	mg/kg-day	1.0E-09	mg/kg-day	0.21
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	9.9E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	7.8E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	9.1E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	6.8E-06	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.0E-06	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	1.8E-06	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	6.4E-06	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.5E-05	mg/kg-day	2.0E-05	mg/kg-day	0.73
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.7E-06	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	5.7E-02	mg/kg-day	1.0E+00	mg/kg-day	0.057
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	6.1E-06	mg/kg-day	4.0E-04	mg/kg-day	0.015
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	3.0E-05	mg/kg-day	3.0E-04	mg/kg-day	0.10
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.2E-05	mg/kg-day	1.0E-03	mg/kg-day	0.022
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	2.4E-02	mg/kg-day	3.0E-03	mg/kg-day	8.1
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	4.3E-05	mg/kg-day	3.0E-04	mg/kg-day	0.14
				Iron	1.47E+04	mg/kg	---	---	---	---	---	9.4E-02	mg/kg-day	7.0E-01	mg/kg-day	0.13
				Lead	4.79E+02	mg/kg	---	---	---	---	---	3.1E-03	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	1.7E-03	mg/kg-day	7.0E-02	mg/kg-day	0.024
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	3.5E-06	mg/kg-day	1.6E-04	mg/kg-day	0.022
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	3.5E-03	mg/kg-day	2.0E-02	mg/kg-day	0.18
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	7.1E-06	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	1.0E-03	mg/kg-day	5.0E-03	mg/kg-day	0.20
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	2.7E-02	mg/kg-day	3.0E-01	mg/kg-day	0.092
			Ingestion Total								---					10
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.2E-08	mg/kg-day	5.0E-05	mg/kg-day	0.00023
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	1.0E-07	mg/kg-day	NA	---	NA

TABLE A-7.2j-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.1E-07	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	7.0E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0070
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.4E-06	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	1.1E-06	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	1.3E-06	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	9.9E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.9E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.6E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	9.3E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	2.3E-06	mg/kg-day	2.0E-05	mg/kg-day	0.12
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	2.7E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	1.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0034
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.5E-08	mg/kg-day	2.5E-05	mg/kg-day	0.0010
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								---					0.13
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	2.4E-08	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	---	---	---	---	---	9.7E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	---	---	---	---	---	1.1E-11	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	---	---	---	---	---	9.7E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	---	---	---	---	---	1.0E-10	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	---	---	---	---	---	2.2E-14	mg/m3	4.0E-08	mg/m3	0.00000056
				PAHs												

TABLE A-7.2j-2 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	---	---	---	---	---	1.1E-09	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	---	---	---	---	---	8.5E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	---	---	---	---	---	9.8E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	---	---	---	---	---	7.4E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	---	---	---	---	---	2.1E-10	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	---	---	---	---	---	2.0E-10	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	---	---	---	---	---	6.9E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	---	---	---	---	---	1.6E-09	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	---	---	---	---	---	1.8E-10	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	---	---	---	---	---	6.2E-06	mg/m3	5.0E-03	mg/m3	0.0012
				Antimony	9.56E-01	mg/kg	---	---	---	---	---	6.6E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	---	---	---	---	---	3.2E-09	mg/m3	1.5E-05	mg/m3	0.00022
				Cadmium	3.49E+00	mg/kg	---	---	---	---	---	2.4E-09	mg/m3	1.0E-05	mg/m3	0.00024
				Chromium Total	3.82E+03	mg/kg	---	---	---	---	---	2.6E-06	mg/m3	1.0E-04	mg/m3	0.026
				Cobalt	6.74E+00	mg/kg	---	---	---	---	---	4.7E-09	mg/m3	6.0E-06	mg/m3	0.00078
				Iron	1.47E+04	mg/kg	---	---	---	---	---	1.0E-05	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	---	---	---	---	---	3.3E-07	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	---	---	---	---	---	1.9E-07	mg/m3	5.0E-05	mg/m3	0.0037
				Mercury	5.52E-01	mg/kg	---	---	---	---	---	3.8E-10	mg/m3	3.0E-04	mg/m3	0.0000013
				Nickel	5.55E+02	mg/kg	---	---	---	---	---	3.8E-07	mg/m3	9.0E-05	mg/m3	0.0043
				Thallium	1.11E+00	mg/kg	---	---	---	---	---	7.6E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	---	---	---	---	---	1.1E-07	mg/m3	3.9E-06	mg/m3	0.028
				Zinc	4.30E+03	mg/kg	---	---	---	---	---	3.0E-06	mg/m3	NA	---	NA
			Inhalation Total								---					0.065
	Aggregate Soil Total										---					10
Soil Total											---					10
										Total of Receptor Risks Across All Media	---				Total of Receptor Hazards Across All Media	10

TABLE A-7.2j-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	2.5E-10	mg/kg-day	NA	---	NA	---	---	---	---	---
				sec-Butylbenzene	1.00E-03	mg/kg	2.5E-10	mg/kg-day	NA	---	NA	---	---	---	---	---
				Cymene	1.00E-03	mg/kg	2.5E-10	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dieldrin	1.63E-02	mg/kg	4.1E-09	mg/kg-day	1.6E+01	(mg/kg-day)-1	6.5E-08	---	---	---	---	---
				Dimethyl phthalate	1.40E-01	mg/kg	3.5E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.47E-01	mg/kg	3.7E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	8.2E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.1E-06	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	3.9E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.3E-06	---	---	---	---	---
				Benzo(a)pyrene	1.23E+00	mg/kg	3.1E-07	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.8E-05	---	---	---	---	---
				Benzo(b)fluoranthene	1.43E+00	mg/kg	3.6E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.1E-06	---	---	---	---	---
				Benzo(k)fluoranthene	1.07E+00	mg/kg	2.7E-07	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.6E-07	---	---	---	---	---
				Carbazole	3.10E-01	mg/kg	7.8E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	7.1E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.2E-06	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	2.5E-07	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-06	---	---	---	---	---
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	5.8E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.2E-06	---	---	---	---	---
				Aroclor-1260	2.67E-01	mg/kg	6.7E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.3E-07	---	---	---	---	---
				Metals												
				Aluminum	8.98E+03	mg/kg	2.3E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	9.56E-01	mg/kg	2.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.70E+00	mg/kg	1.2E-06	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.8E-06	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	8.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	3.82E+03	mg/kg	9.6E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	3.9E-03	---	---	---	---	---
				Cobalt	6.74E+00	mg/kg	1.7E-06	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	3.7E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.79E+02	mg/kg	1.2E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.68E+02	mg/kg	6.7E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.52E-01	mg/kg	1.4E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	5.55E+02	mg/kg	1.4E-04	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.11E+00	mg/kg	2.8E-07	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	1.60E+02	mg/kg	4.0E-05	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	4.30E+03	mg/kg	1.1E-03	mg/kg-day	NA	---	NA	---	---	---	---	---
			Ingestion Total								3.9E-03					---
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dieldrin	1.63E-02	mg/kg	4.6E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	7.4E-09	---	---	---	---	---
				Dimethyl phthalate	1.40E-01	mg/kg	4.0E-09	mg/kg-day	NA	---	NA	---	---	---	---	---

TABLE A-7.2j-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	4.2E-09	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	2.8E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	3.6E-08	---	---	---	---	---
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	5.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.3E-07	---	---	---	---	---
				Benzo(a)pyrene	1.23E+00	mg/kg	4.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.7E-06	---	---	---	---	---
				Benzo(b)fluoranthene	1.43E+00	mg/kg	5.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	3.1E-07	---	---	---	---	---
				Benzo(k)fluoranthene	1.07E+00	mg/kg	3.9E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	2.3E-08	---	---	---	---	---
				Carbazole	3.10E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	6.1E-07	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-07	---	---	---	---	---
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	9.1E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.8E-07	---	---	---	---	---
				Aroclor-1260	2.67E-01	mg/kg	1.1E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.1E-08	---	---	---	---	---
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Arsenic	4.70E+00	mg/kg	4.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	6.0E-08	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	9.9E-10	mg/kg-day	NA	---	NA	---	---	---	---	---
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	---	---	---	---	---
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	---	---	---	---	---
			Dermal Total								4.5E-06					---
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	3.1E-09	mg/m3	NA	---	NA	---	---	---	---	---
				sec-Butylbenzene	1.00E-03	mg/kg	1.2E-04	mg/m3	NA	---	NA	---	---	---	---	---
				Cymene	1.00E-03	mg/kg	1.2E-04	mg/m3	NA	---	NA	---	---	---	---	---
				Dieldrin	1.63E-02	mg/kg	1.4E-12	mg/m3	4.6E-03	(µg/m3)-1	6.7E-12	---	---	---	---	---
				Dimethyl phthalate	1.40E-01	mg/kg	1.2E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Di-n-octyl phthalate	1.47E-01	mg/kg	1.3E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	2.9E-15	mg/m3	3.8E+01	(µg/m3)-1	1.1E-10	---	---	---	---	---
				PAHs												

TABLE A-7.2j-3 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	1.4E-10	mg/m3	1.1E-04	(µg/m3)-1	6.8E-11	---	---	---	---	---
				Benzo(a)pyrene	1.23E+00	mg/kg	1.1E-10	mg/m3	1.1E-03	(µg/m3)-1	5.4E-10	---	---	---	---	---
				Benzo(b)fluoranthene	1.43E+00	mg/kg	1.3E-10	mg/m3	1.1E-04	(µg/m3)-1	6.3E-11	---	---	---	---	---
				Benzo(k)fluoranthene	1.07E+00	mg/kg	9.5E-11	mg/m3	1.1E-04	(µg/m3)-1	4.7E-11	---	---	---	---	---
				Carbazole	3.10E-01	mg/kg	2.8E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	2.5E-11	mg/m3	1.2E-03	(µg/m3)-1	1.4E-10	---	---	---	---	---
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	8.9E-11	mg/m3	1.1E-04	(µg/m3)-1	4.4E-11	---	---	---	---	---
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	2.0E-10	mg/m3	5.7E-04	(µg/m3)-1	1.2E-10	---	---	---	---	---
				Aroclor-1260	2.67E-01	mg/kg	2.4E-11	mg/m3	5.7E-04	(µg/m3)-1	1.4E-11	---	---	---	---	---
				Metals												
				Aluminum	8.98E+03	mg/kg	8.0E-07	mg/m3	NA	---	NA	---	---	---	---	---
				Antimony	9.56E-01	mg/kg	8.5E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Arsenic	4.70E+00	mg/kg	4.2E-10	mg/m3	4.3E-03	(µg/m3)-1	1.8E-09	---	---	---	---	---
				Cadmium	3.49E+00	mg/kg	3.1E-10	mg/m3	1.8E-03	(µg/m3)-1	5.6E-10	---	---	---	---	---
				Chromium Total	3.82E+03	mg/kg	3.4E-07	mg/m3	8.4E-02	(µg/m3)-1	1.3E-04	---	---	---	---	---
				Cobalt	6.74E+00	mg/kg	6.0E-10	mg/m3	9.0E-03	(µg/m3)-1	5.4E-09	---	---	---	---	---
				Iron	1.47E+04	mg/kg	1.3E-06	mg/m3	NA	---	NA	---	---	---	---	---
				Lead	4.79E+02	mg/kg	4.3E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Manganese	2.68E+02	mg/kg	2.4E-08	mg/m3	NA	---	NA	---	---	---	---	---
				Mercury	5.52E-01	mg/kg	4.9E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Nickel	5.55E+02	mg/kg	4.9E-08	mg/m3	2.6E-04	(µg/m3)-1	1.3E-08	---	---	---	---	---
				Thallium	1.11E+00	mg/kg	9.8E-11	mg/m3	NA	---	NA	---	---	---	---	---
				Vanadium	1.60E+02	mg/kg	1.4E-08	mg/m3	1.5E-02	(µg/m3)-1	2.1E-07	---	---	---	---	---
				Zinc	4.30E+03	mg/kg	3.8E-07	mg/m3	NA	---	NA	---	---	---	---	---
			Inhalation Total								1.3E-04					---
	Aggregate Soil Total										4.1E-03					---
Soil Total											4.1E-03					---
										Total of Receptor Risks Across All Media	4.1E-03				Total of Receptor Hazards Across All Media	---

TABLE A-7.2j-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	1.1E-11	mg/kg-day	NA	---	NA	8.8E-11	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	1.1E-11	mg/kg-day	NA	---	NA	8.8E-11	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	1.1E-11	mg/kg-day	NA	---	NA	8.8E-11	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	1.8E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.0E-09	1.4E-09	mg/kg-day	5.0E-05	mg/kg-day	0.000029
				Dimethyl phthalate	1.40E-01	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	1.2E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	1.7E-09	mg/kg-day	NA	---	NA	1.3E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	3.7E-13	mg/kg-day	1.3E+05	(mg/kg-day)-1	4.8E-08	2.9E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0029
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	1.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.3E-08	1.4E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	1.4E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.0E-07	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	1.6E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.2E-08	1.3E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	1.2E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	8.8E-10	9.4E-08	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	3.5E-09	mg/kg-day	NA	---	NA	2.7E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	3.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.3E-08	2.5E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	1.1E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	8.3E-09	8.8E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	2.6E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.2E-08	2.0E-07	mg/kg-day	2.0E-05	mg/kg-day	0.010
				Aroclor-1260	2.67E-01	mg/kg	3.0E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.0E-09	2.4E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	1.0E-04	mg/kg-day	NA	---	NA	7.9E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00079
				Antimony	9.56E-01	mg/kg	1.1E-08	mg/kg-day	NA	---	NA	8.4E-08	mg/kg-day	4.0E-04	mg/kg-day	0.00021
				Arsenic	4.70E+00	mg/kg	5.3E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	8.0E-08	4.1E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0014
				Cadmium	3.49E+00	mg/kg	4.0E-08	mg/kg-day	NA	---	NA	3.1E-07	mg/kg-day	1.0E-03	mg/kg-day	0.00031
				Chromium Total	3.82E+03	mg/kg	4.3E-05	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.2E-05	3.4E-04	mg/kg-day	3.0E-03	mg/kg-day	0.11
				Cobalt	6.74E+00	mg/kg	7.6E-08	mg/kg-day	NA	---	NA	5.9E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0020
				Iron	1.47E+04	mg/kg	1.7E-04	mg/kg-day	NA	---	NA	1.3E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0018
				Lead	4.79E+02	mg/kg	5.4E-06	mg/kg-day	NA	---	NA	4.2E-05	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	3.0E-06	mg/kg-day	NA	---	NA	2.4E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00034
				Mercury	5.52E-01	mg/kg	6.2E-09	mg/kg-day	NA	---	NA	4.9E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00030
				Nickel	5.55E+02	mg/kg	6.3E-06	mg/kg-day	NA	---	NA	4.9E-05	mg/kg-day	2.0E-02	mg/kg-day	0.0024
				Thallium	1.11E+00	mg/kg	1.3E-08	mg/kg-day	NA	---	NA	9.8E-08	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	1.8E-06	mg/kg-day	NA	---	NA	1.4E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0028
				Zinc	4.30E+03	mg/kg	4.9E-05	mg/kg-day	NA	---	NA	3.8E-04	mg/kg-day	3.0E-01	mg/kg-day	0.0013
			Ingestion Total								2.2E-05					0.14
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	2.4E-11	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.9E-10	1.9E-10	mg/kg-day	5.0E-05	mg/kg-day	0.0000038
				Dimethyl phthalate	1.40E-01	mg/kg	2.1E-10	mg/kg-day	NA	---	NA	1.6E-09	mg/kg-day	NA	---	NA

TABLE A-7.2j-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	2.2E-10	mg/kg-day	NA	---	NA	1.7E-09	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.5E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	1.9E-09	1.1E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00011
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	3.0E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.2E-09	2.3E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	2.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.7E-08	1.9E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	2.8E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	2.0E-09	2.2E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	2.1E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.5E-10	1.6E-08	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	6.0E-10	mg/kg-day	NA	---	NA	4.7E-09	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	5.5E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.0E-09	4.3E-09	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	1.9E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.4E-09	1.5E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	4.8E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	9.6E-09	3.7E-08	mg/kg-day	2.0E-05	mg/kg-day	0.0019
				Aroclor-1260	2.67E-01	mg/kg	5.6E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.1E-09	4.3E-09	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	2.1E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.2E-09	1.6E-08	mg/kg-day	3.0E-04	mg/kg-day	0.000055
				Cadmium	3.49E+00	mg/kg	5.2E-11	mg/kg-day	NA	---	NA	4.1E-10	mg/kg-day	2.5E-05	mg/kg-day	0.000016
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								4.3E-08					0.0021
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	2.5E-10	mg/m3	NA	---	NA	1.9E-09	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	5.3E-06	mg/m3	NA	---	NA	4.1E-05	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	5.3E-06	mg/m3	NA	---	NA	4.1E-05	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	6.2E-14	mg/m3	4.6E-03	(µg/m3)-1	2.9E-13	4.8E-13	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	5.3E-13	mg/m3	NA	---	NA	4.1E-12	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	5.6E-13	mg/m3	NA	---	NA	4.3E-12	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.2E-16	mg/m3	3.8E+01	(µg/m3)-1	4.7E-12	9.6E-16	mg/m3	4.0E-08	mg/m3	0.000000024
				PAHs												

TABLE A-7.2j-5 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	5.9E-12	mg/m3	1.1E-04	(µg/m3)-1	6.5E-13	4.6E-11	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	4.7E-12	mg/m3	1.1E-03	(µg/m3)-1	5.1E-12	3.6E-11	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	5.4E-12	mg/m3	1.1E-04	(µg/m3)-1	6.0E-13	4.2E-11	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	4.1E-12	mg/m3	1.1E-04	(µg/m3)-1	4.5E-13	3.2E-11	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	1.2E-12	mg/m3	NA	---	NA	9.2E-12	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.1E-12	mg/m3	1.2E-03	(µg/m3)-1	1.3E-12	8.4E-12	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	3.8E-12	mg/m3	1.1E-04	(µg/m3)-1	4.2E-13	3.0E-11	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	8.7E-12	mg/m3	5.7E-04	(µg/m3)-1	5.0E-12	6.8E-11	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	1.0E-12	mg/m3	5.7E-04	(µg/m3)-1	5.8E-13	7.9E-12	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	3.4E-08	mg/m3	NA	---	NA	2.7E-07	mg/m3	5.0E-03	mg/m3	0.000053
				Antimony	9.56E-01	mg/kg	3.6E-12	mg/m3	NA	---	NA	2.8E-11	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	1.8E-11	mg/m3	4.3E-03	(µg/m3)-1	7.7E-11	1.4E-10	mg/m3	1.5E-05	mg/m3	0.0000093
				Cadmium	3.49E+00	mg/kg	1.3E-11	mg/m3	1.8E-03	(µg/m3)-1	2.4E-11	1.0E-10	mg/m3	1.0E-05	mg/m3	0.000010
				Chromium Total	3.82E+03	mg/kg	1.5E-08	mg/m3	8.4E-02	(µg/m3)-1	1.2E-06	1.1E-07	mg/m3	1.0E-04	mg/m3	0.0011
				Cobalt	6.74E+00	mg/kg	2.6E-11	mg/m3	9.0E-03	(µg/m3)-1	2.3E-10	2.0E-10	mg/m3	6.0E-06	mg/m3	0.000033
				Iron	1.47E+04	mg/kg	5.6E-08	mg/m3	NA	---	NA	4.3E-07	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	1.8E-09	mg/m3	NA	---	NA	1.4E-08	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	1.0E-09	mg/m3	NA	---	NA	7.9E-09	mg/m3	5.0E-05	mg/m3	0.00016
				Mercury	5.52E-01	mg/kg	2.1E-12	mg/m3	NA	---	NA	1.6E-11	mg/m3	3.0E-04	mg/m3	0.000000054
				Nickel	5.55E+02	mg/kg	2.1E-09	mg/m3	2.6E-04	(µg/m3)-1	5.5E-10	1.6E-08	mg/m3	9.0E-05	mg/m3	0.00018
				Thallium	1.11E+00	mg/kg	4.2E-12	mg/m3	NA	---	NA	3.3E-11	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	6.1E-10	mg/m3	1.5E-02	(µg/m3)-1	9.1E-09	4.7E-09	mg/m3	3.9E-06	mg/m3	0.0012
				Zinc	4.30E+03	mg/kg	1.6E-08	mg/m3	NA	---	NA	1.3E-07	mg/m3	NA	---	NA
			Inhalation Total								1.2E-06					0.0028
	Aggregate Soil Total										2.3E-05					0.14
Soil Total											2.3E-05					0.14
										Total of Receptor Risks Across All Media	2.3E-05				Total of Receptor Hazards Across All Media	0.14

TABLE A-7.2j-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	5.5E-11	mg/kg-day	NA	---	NA	4.3E-10	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	5.5E-11	mg/kg-day	NA	---	NA	4.3E-10	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	5.5E-11	mg/kg-day	NA	---	NA	4.3E-10	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	9.0E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.4E-08	7.0E-09	mg/kg-day	5.0E-05	mg/kg-day	0.00014
				Dimethyl phthalate	1.40E-01	mg/kg	7.7E-09	mg/kg-day	NA	---	NA	6.0E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	8.1E-09	mg/kg-day	NA	---	NA	6.3E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	1.8E-12	mg/kg-day	1.3E+05	(mg/kg-day)-1	2.3E-07	1.4E-11	mg/kg-day	1.0E-09	mg/kg-day	0.014
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	8.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.2E-08	6.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	6.8E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	4.9E-07	5.3E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	7.9E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	5.7E-08	6.1E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	5.9E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.3E-09	4.6E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	1.7E-08	mg/kg-day	NA	---	NA	1.3E-07	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.6E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.1E-07	1.2E-07	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	5.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.0E-08	4.3E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	1.3E-07	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.5E-07	9.9E-07	mg/kg-day	2.0E-05	mg/kg-day	0.049
				Aroclor-1260	2.67E-01	mg/kg	1.5E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	2.9E-08	1.1E-07	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	4.9E-04	mg/kg-day	NA	---	NA	3.8E-03	mg/kg-day	1.0E+00	mg/kg-day	0.0038
				Antimony	9.56E-01	mg/kg	5.3E-08	mg/kg-day	NA	---	NA	4.1E-07	mg/kg-day	4.0E-04	mg/kg-day	0.0010
				Arsenic	4.70E+00	mg/kg	2.6E-07	mg/kg-day	1.5E+00	(mg/kg-day)-1	3.9E-07	2.0E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0067
				Cadmium	3.49E+00	mg/kg	1.9E-07	mg/kg-day	NA	---	NA	1.5E-06	mg/kg-day	1.0E-03	mg/kg-day	0.0015
				Chromium Total	3.82E+03	mg/kg	2.1E-04	mg/kg-day	5.0E-01	(mg/kg-day)-1	1.1E-04	1.6E-03	mg/kg-day	3.0E-03	mg/kg-day	0.55
				Cobalt	6.74E+00	mg/kg	3.7E-07	mg/kg-day	NA	---	NA	2.9E-06	mg/kg-day	3.0E-04	mg/kg-day	0.0096
				Iron	1.47E+04	mg/kg	8.1E-04	mg/kg-day	NA	---	NA	6.3E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0090
				Lead	4.79E+02	mg/kg	2.6E-05	mg/kg-day	NA	---	NA	2.1E-04	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	1.5E-05	mg/kg-day	NA	---	NA	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	0.0016
				Mercury	5.52E-01	mg/kg	3.0E-08	mg/kg-day	NA	---	NA	2.4E-07	mg/kg-day	1.6E-04	mg/kg-day	0.0015
				Nickel	5.55E+02	mg/kg	3.1E-05	mg/kg-day	NA	---	NA	2.4E-04	mg/kg-day	2.0E-02	mg/kg-day	0.012
				Thallium	1.11E+00	mg/kg	6.1E-08	mg/kg-day	NA	---	NA	4.7E-07	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	8.8E-06	mg/kg-day	NA	---	NA	6.9E-05	mg/kg-day	5.0E-03	mg/kg-day	0.014
				Zinc	4.30E+03	mg/kg	2.4E-04	mg/kg-day	NA	---	NA	1.8E-03	mg/kg-day	3.0E-01	mg/kg-day	0.0061
			Ingestion Total								1.1E-04					0.68
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	1.2E-10	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.9E-09	9.2E-10	mg/kg-day	5.0E-05	mg/kg-day	0.000018
				Dimethyl phthalate	1.40E-01	mg/kg	1.0E-09	mg/kg-day	NA	---	NA	7.9E-09	mg/kg-day	NA	---	NA

TABLE A-7.2j-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	1.1E-09	mg/kg-day	NA	---	NA	8.3E-09	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	7.1E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	9.2E-09	5.5E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00055
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	1.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-08	1.1E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	1.2E-08	mg/kg-day	7.3E+00	(mg/kg-day)-1	8.5E-08	9.0E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	1.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)-1	9.8E-09	1.0E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	1.0E-08	mg/kg-day	7.3E-02	(mg/kg-day)-1	7.4E-10	7.9E-08	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	2.9E-09	mg/kg-day	NA	---	NA	2.3E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	2.7E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	2.0E-08	2.1E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	9.4E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.9E-09	7.3E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	2.3E-08	mg/kg-day	2.0E+00	(mg/kg-day)-1	4.7E-08	1.8E-07	mg/kg-day	2.0E-05	mg/kg-day	0.0091
				Aroclor-1260	2.67E-01	mg/kg	2.7E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	5.4E-09	2.1E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	1.0E-08	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.5E-08	8.0E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00027
				Cadmium	3.49E+00	mg/kg	2.5E-10	mg/kg-day	NA	---	NA	2.0E-09	mg/kg-day	2.5E-05	mg/kg-day	0.000079
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								2.1E-07					0.010
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	1.2E-09	mg/m3	NA	---	NA	9.3E-09	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	2.6E-05	mg/m3	NA	---	NA	2.0E-04	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	2.6E-05	mg/m3	NA	---	NA	2.0E-04	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	3.0E-13	mg/m3	4.6E-03	(µg/m3)-1	1.4E-12	2.3E-12	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	2.6E-12	mg/m3	NA	---	NA	2.0E-11	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	2.7E-12	mg/m3	NA	---	NA	2.1E-11	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	6.0E-16	mg/m3	3.8E+01	(µg/m3)-1	2.3E-11	4.7E-15	mg/m3	4.0E-08	mg/m3	0.00000012
				PAHs												

TABLE A-7.2j-6 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	2.9E-11	mg/m3	1.1E-04	(µg/m3)-1	3.1E-12	2.2E-10	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	2.3E-11	mg/m3	1.1E-03	(µg/m3)-1	2.5E-11	1.8E-10	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	2.6E-11	mg/m3	1.1E-04	(µg/m3)-1	2.9E-12	2.1E-10	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	2.0E-11	mg/m3	1.1E-04	(µg/m3)-1	2.2E-12	1.5E-10	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	5.7E-12	mg/m3	NA	---	NA	4.5E-11	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	5.2E-12	mg/m3	1.2E-03	(µg/m3)-1	6.3E-12	4.1E-11	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	1.8E-11	mg/m3	1.1E-04	(µg/m3)-1	2.0E-12	1.4E-10	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	4.3E-11	mg/m3	5.7E-04	(µg/m3)-1	2.4E-11	3.3E-10	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	4.9E-12	mg/m3	5.7E-04	(µg/m3)-1	2.8E-12	3.8E-11	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	1.7E-07	mg/m3	NA	---	NA	1.3E-06	mg/m3	5.0E-03	mg/m3	0.00026
				Antimony	9.56E-01	mg/kg	1.8E-11	mg/m3	NA	---	NA	1.4E-10	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	8.7E-11	mg/m3	4.3E-03	(µg/m3)-1	3.7E-10	6.8E-10	mg/m3	1.5E-05	mg/m3	0.000045
				Cadmium	3.49E+00	mg/kg	6.5E-11	mg/m3	1.8E-03	(µg/m3)-1	1.2E-10	5.0E-10	mg/m3	1.0E-05	mg/m3	0.000050
				Chromium Total	3.82E+03	mg/kg	7.1E-08	mg/m3	8.4E-02	(µg/m3)-1	5.9E-06	5.5E-07	mg/m3	1.0E-04	mg/m3	0.0055
				Cobalt	6.74E+00	mg/kg	1.2E-10	mg/m3	9.0E-03	(µg/m3)-1	1.1E-09	9.7E-10	mg/m3	6.0E-06	mg/m3	0.00016
				Iron	1.47E+04	mg/kg	2.7E-07	mg/m3	NA	---	NA	2.1E-06	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	8.9E-09	mg/m3	NA	---	NA	6.9E-08	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	5.0E-09	mg/m3	NA	---	NA	3.9E-08	mg/m3	5.0E-05	mg/m3	0.00077
				Mercury	5.52E-01	mg/kg	1.0E-11	mg/m3	NA	---	NA	7.9E-11	mg/m3	3.0E-04	mg/m3	0.00000026
				Nickel	5.55E+02	mg/kg	1.0E-08	mg/m3	2.6E-04	(µg/m3)-1	2.7E-09	8.0E-08	mg/m3	9.0E-05	mg/m3	0.00089
				Thallium	1.11E+00	mg/kg	2.1E-11	mg/m3	NA	---	NA	1.6E-10	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	3.0E-09	mg/m3	1.5E-02	(µg/m3)-1	4.4E-08	2.3E-08	mg/m3	3.9E-06	mg/m3	0.0059
				Zinc	4.30E+03	mg/kg	8.0E-08	mg/m3	NA	---	NA	6.2E-07	mg/m3	NA	---	NA
			Inhalation Total								6.0E-06					0.014
	Aggregate Soil Total										1.1E-04					0.70
Soil Total											1.1E-04					0.70
										Total of Receptor Risks Across All Media	1.1E-04				Total of Receptor Hazards Across All Media	0.70

TABLE A-7.2j-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Ingestion	n-Butylbenzene	1.00E-03	mg/kg	1.5E-12	mg/kg-day	NA	---	NA	1.0E-10	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	1.5E-12	mg/kg-day	NA	---	NA	1.0E-10	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	1.5E-12	mg/kg-day	NA	---	NA	1.0E-10	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	2.4E-11	mg/kg-day	1.6E+01	(mg/kg-day)-1	3.8E-10	1.7E-09	mg/kg-day	5.0E-05	mg/kg-day	0.000033
				Dimethyl phthalate	1.40E-01	mg/kg	2.0E-10	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	2.1E-10	mg/kg-day	NA	---	NA	1.5E-08	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	4.7E-14	mg/kg-day	1.3E+05	(mg/kg-day)-1	6.1E-09	3.3E-12	mg/kg-day	1.0E-09	mg/kg-day	0.0033
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	2.2E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.6E-09	1.6E-07	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	1.8E-09	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-08	1.2E-07	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	2.1E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.5E-09	1.5E-07	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	1.6E-09	mg/kg-day	7.3E-02	(mg/kg-day)-1	1.1E-10	1.1E-07	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	4.5E-10	mg/kg-day	NA	---	NA	3.2E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	4.1E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	3.0E-09	2.9E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	1.5E-09	mg/kg-day	7.3E-01	(mg/kg-day)-1	1.1E-09	1.0E-07	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	3.3E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	6.7E-09	2.3E-07	mg/kg-day	2.0E-05	mg/kg-day	0.012
				Aroclor-1260	2.67E-01	mg/kg	3.9E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	7.8E-10	2.7E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	1.3E-05	mg/kg-day	NA	---	NA	9.1E-04	mg/kg-day	1.0E+00	mg/kg-day	0.00091
				Antimony	9.56E-01	mg/kg	1.4E-09	mg/kg-day	NA	---	NA	9.7E-08	mg/kg-day	4.0E-04	mg/kg-day	0.00024
				Arsenic	4.70E+00	mg/kg	6.8E-09	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.0E-08	4.8E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0016
				Cadmium	3.49E+00	mg/kg	5.1E-09	mg/kg-day	NA	---	NA	3.6E-07	mg/kg-day	1.0E-03	mg/kg-day	0.00036
				Chromium Total	3.82E+03	mg/kg	5.6E-06	mg/kg-day	5.0E-01	(mg/kg-day)-1	2.8E-06	3.9E-04	mg/kg-day	3.0E-03	mg/kg-day	0.13
				Cobalt	6.74E+00	mg/kg	9.8E-09	mg/kg-day	NA	---	NA	6.9E-07	mg/kg-day	3.0E-04	mg/kg-day	0.0023
				Iron	1.47E+04	mg/kg	2.1E-05	mg/kg-day	NA	---	NA	1.5E-03	mg/kg-day	7.0E-01	mg/kg-day	0.0021
				Lead	4.79E+02	mg/kg	7.0E-07	mg/kg-day	NA	---	NA	4.9E-05	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	3.9E-07	mg/kg-day	NA	---	NA	2.7E-05	mg/kg-day	7.0E-02	mg/kg-day	0.00039
				Mercury	5.52E-01	mg/kg	8.0E-10	mg/kg-day	NA	---	NA	5.6E-08	mg/kg-day	1.6E-04	mg/kg-day	0.00035
				Nickel	5.55E+02	mg/kg	8.1E-07	mg/kg-day	NA	---	NA	5.6E-05	mg/kg-day	2.0E-02	mg/kg-day	0.0028
				Thallium	1.11E+00	mg/kg	1.6E-09	mg/kg-day	NA	---	NA	1.1E-07	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	2.3E-07	mg/kg-day	NA	---	NA	1.6E-05	mg/kg-day	5.0E-03	mg/kg-day	0.0032
				Zinc	4.30E+03	mg/kg	6.2E-06	mg/kg-day	NA	---	NA	4.4E-04	mg/kg-day	3.0E-01	mg/kg-day	0.0015
			Ingestion Total								2.8E-06					0.16
			Dermal	n-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Cymene	1.00E-03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	7.8E-12	mg/kg-day	1.6E+01	(mg/kg-day)-1	1.3E-10	5.5E-10	mg/kg-day	5.0E-05	mg/kg-day	0.000011
				Dimethyl phthalate	1.40E-01	mg/kg	6.7E-11	mg/kg-day	NA	---	NA	4.7E-09	mg/kg-day	NA	---	NA

TABLE A-7.2j-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dermal	Di-n-octyl phthalate	1.47E-01	mg/kg	7.1E-11	mg/kg-day	NA	---	NA	4.9E-09	mg/kg-day	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	4.7E-15	mg/kg-day	1.3E+05	(mg/kg-day)-1	6.1E-10	3.3E-13	mg/kg-day	1.0E-09	mg/kg-day	0.00033
				PAHs												
				Benzo(a)anthracene	1.55E+00	mg/kg	9.6E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	7.0E-10	6.7E-08	mg/kg-day	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	7.6E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	5.6E-09	5.4E-08	mg/kg-day	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	8.9E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	6.5E-10	6.2E-08	mg/kg-day	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	6.7E-10	mg/kg-day	7.3E-02	(mg/kg-day)-1	4.9E-11	4.7E-08	mg/kg-day	NA	---	NA
				Carbazole	3.10E-01	mg/kg	1.9E-10	mg/kg-day	NA	---	NA	1.4E-08	mg/kg-day	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	1.8E-10	mg/kg-day	7.3E+00	(mg/kg-day)-1	1.3E-09	1.2E-08	mg/kg-day	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	6.2E-10	mg/kg-day	7.3E-01	(mg/kg-day)-1	4.5E-10	4.4E-08	mg/kg-day	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	1.5E-09	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.1E-09	1.1E-07	mg/kg-day	2.0E-05	mg/kg-day	0.0054
				Aroclor-1260	2.67E-01	mg/kg	1.8E-10	mg/kg-day	2.0E+00	(mg/kg-day)-1	3.6E-10	1.3E-08	mg/kg-day	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.0E+00	mg/kg-day	NA
				Antimony	9.56E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	6.0E-05	mg/kg-day	NA
				Arsenic	4.70E+00	mg/kg	6.8E-10	mg/kg-day	1.5E+00	(mg/kg-day)-1	1.0E-09	4.7E-08	mg/kg-day	3.0E-04	mg/kg-day	0.00016
				Cadmium	3.49E+00	mg/kg	1.7E-11	mg/kg-day	NA	---	NA	1.2E-09	mg/kg-day	2.5E-05	mg/kg-day	0.000047
				Chromium Total	3.82E+03	mg/kg	NA	mg/kg-day	1.3E-02	(mg/kg-day)-1	NA	NA	mg/kg-day	7.5E-05	mg/kg-day	NA
				Cobalt	6.74E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-04	mg/kg-day	NA
				Iron	1.47E+04	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-01	mg/kg-day	NA
				Lead	4.79E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Manganese	2.68E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	7.0E-02	mg/kg-day	NA
				Mercury	5.52E-01	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.6E-04	mg/kg-day	NA
				Nickel	5.55E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	8.0E-04	mg/kg-day	NA
				Thallium	1.11E+00	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	NA	---	NA
				Vanadium	1.60E+02	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	1.3E-04	mg/kg-day	NA
				Zinc	4.30E+03	mg/kg	NA	mg/kg-day	NA	---	NA	NA	mg/kg-day	3.0E-01	mg/kg-day	NA
			Dermal Total								1.4E-08					0.0059
			Inhalation	n-Butylbenzene	1.00E-03	mg/kg	8.6E-12	mg/m3	NA	---	NA	6.0E-10	mg/m3	NA	---	NA
				sec-Butylbenzene	1.00E-03	mg/kg	3.4E-07	mg/m3	NA	---	NA	2.4E-05	mg/m3	NA	---	NA
				Cymene	1.00E-03	mg/kg	3.4E-07	mg/m3	NA	---	NA	2.4E-05	mg/m3	NA	---	NA
				Dieldrin	1.63E-02	mg/kg	4.0E-12	mg/m3	4.6E-03	(µg/m3)-1	1.8E-11	2.8E-10	mg/m3	NA	---	NA
				Dimethyl phthalate	1.40E-01	mg/kg	3.4E-11	mg/m3	NA	---	NA	2.4E-09	mg/m3	NA	---	NA
				Di-n-octyl phthalate	1.47E-01	mg/kg	3.6E-11	mg/m3	NA	---	NA	2.5E-09	mg/m3	NA	---	NA
				Dioxins/Furans												
				2,3,7,8-TCDD TEQ	3.25E-05	mg/kg	7.9E-15	mg/m3	3.8E+01	(µg/m3)-1	3.0E-10	5.6E-13	mg/m3	4.0E-08	mg/m3	0.000014
				PAHs												

TABLE A-7.2j-8 CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Inhalation	Benzo(a)anthracene	1.55E+00	mg/kg	3.8E-10	mg/m3	1.1E-04	(µg/m3)-1	4.2E-11	2.6E-08	mg/m3	NA	---	NA
				Benzo(a)pyrene	1.23E+00	mg/kg	3.0E-10	mg/m3	1.1E-03	(µg/m3)-1	3.3E-10	2.1E-08	mg/m3	NA	---	NA
				Benzo(b)fluoranthene	1.43E+00	mg/kg	3.5E-10	mg/m3	1.1E-04	(µg/m3)-1	3.8E-11	2.4E-08	mg/m3	NA	---	NA
				Benzo(k)fluoranthene	1.07E+00	mg/kg	2.6E-10	mg/m3	1.1E-04	(µg/m3)-1	2.9E-11	1.8E-08	mg/m3	NA	---	NA
				Carbazole	3.10E-01	mg/kg	7.6E-11	mg/m3	NA	---	NA	5.3E-09	mg/m3	NA	---	NA
				Dibenz(a,h)anthracene	2.83E-01	mg/kg	6.9E-11	mg/m3	1.2E-03	(µg/m3)-1	8.3E-11	4.8E-09	mg/m3	NA	---	NA
				Indeno(1,2,3-cd)pyrene	9.99E-01	mg/kg	2.4E-10	mg/m3	1.1E-04	(µg/m3)-1	2.7E-11	1.7E-08	mg/m3	NA	---	NA
				PCBs												
				Aroclor-1254	2.30E+00	mg/kg	5.6E-10	mg/m3	5.7E-04	(µg/m3)-1	3.2E-10	3.9E-08	mg/m3	NA	---	NA
				Aroclor-1260	2.67E-01	mg/kg	6.5E-11	mg/m3	5.7E-04	(µg/m3)-1	3.7E-11	4.6E-09	mg/m3	NA	---	NA
				Metals												
				Aluminum	8.98E+03	mg/kg	2.2E-06	mg/m3	NA	---	NA	1.5E-04	mg/m3	5.0E-03	mg/m3	0.031
				Antimony	9.56E-01	mg/kg	2.3E-10	mg/m3	NA	---	NA	1.6E-08	mg/m3	NA	---	NA
				Arsenic	4.70E+00	mg/kg	1.1E-09	mg/m3	4.3E-03	(µg/m3)-1	4.9E-09	8.0E-08	mg/m3	1.5E-05	mg/m3	0.0054
				Cadmium	3.49E+00	mg/kg	8.5E-10	mg/m3	1.8E-03	(µg/m3)-1	1.5E-09	6.0E-08	mg/m3	1.0E-05	mg/m3	0.0060
				Chromium Total	3.82E+03	mg/kg	9.3E-07	mg/m3	8.4E-02	(µg/m3)-1	7.8E-05	6.5E-05	mg/m3	1.0E-04	mg/m3	0.65
				Cobalt	6.74E+00	mg/kg	1.6E-09	mg/m3	9.0E-03	(µg/m3)-1	1.5E-08	1.2E-07	mg/m3	6.0E-06	mg/m3	0.019
				Iron	1.47E+04	mg/kg	3.6E-06	mg/m3	NA	---	NA	2.5E-04	mg/m3	NA	---	NA
				Lead	4.79E+02	mg/kg	1.2E-07	mg/m3	NA	---	NA	8.2E-06	mg/m3	NA	---	NA
				Manganese	2.68E+02	mg/kg	6.6E-08	mg/m3	NA	---	NA	4.6E-06	mg/m3	5.0E-05	mg/m3	0.092
				Mercury	5.52E-01	mg/kg	1.3E-10	mg/m3	NA	---	NA	9.4E-09	mg/m3	3.0E-04	mg/m3	0.000031
				Nickel	5.55E+02	mg/kg	1.4E-07	mg/m3	2.6E-04	(µg/m3)-1	3.5E-08	9.5E-06	mg/m3	9.0E-05	mg/m3	0.11
				Thallium	1.11E+00	mg/kg	2.7E-10	mg/m3	NA	---	NA	1.9E-08	mg/m3	NA	---	NA
				Vanadium	1.60E+02	mg/kg	3.9E-08	mg/m3	1.5E-02	(µg/m3)-1	5.9E-07	2.7E-06	mg/m3	5.6E-05	mg/m3	0.049
				Zinc	4.30E+03	mg/kg	1.0E-06	mg/m3	NA	---	NA	7.3E-05	mg/m3	NA	---	NA
			Inhalation Total								7.9E-05					1.0
	Aggregate Soil Total										8.2E-05					1.1
Soil Total											8.2E-05					1.1
										Total of Receptor Risks Across All Media	8.2E-05				Total of Receptor Hazards Across All Media	1.1

TABLE A-9.1d1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.013	---	---	0.013
			Arsenic	---	---	---	---	Skin	0.019	---	0.0023	0.022
			Chromium Total	---	---	---	---	None observed	0.0069	---	---	0.0069
			Cobalt	---	---	---	---	Thyroid	0.029	---	---	0.029
			Iron	---	---	---	---	Gastrointestinal	0.029	---	---	0.029
			Manganese	---	---	---	---	Nervous system	0.0063	---	---	0.0063
			Mercury	---	---	---	---	Nervous system	0.0045	---	---	0.0045
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0072	---	---	0.0072
			Chemical Total	---	---	---	---		0.11	---	0.0023	0.12
		Exposure Point Total					---					0.12
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00019	---	0.00019
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00072	---	0.00072
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000012	---	0.0000012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0046	---	0.0046

TABLE A-9.1d1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil		Chemical Total	---	---	---	---		---	0.011	---	0.011
		Exposure Point Total					---					0.011
	Surface Soil Total						---					0.13
Soil Total							---					0.13

Total Risk Across All Media	---
Total Hazard Across All Media	0.13
Total Nervous System HI Across All Media	0.030
Total Skin HI Across All Media	0.022
Total Thyroid HI Across All Media	0.029
Total Gastrointestinal HI Across All Media	0.029
Total Hair HI Across All Media	0.0072
Total Developmental HI Across All Media	0.00019
Total Cardiovascular HI Across All Media	0.00019
Total Lung/Respiratory Tract HI Across All Media	0.0057

TABLE A-9.1d1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.13	---	---	0.13
			Arsenic	---	---	---	---	Skin	0.18	---	0.015	0.19
			Chromium Total	---	---	---	---	None observed	0.065	---	---	0.065
			Cobalt	---	---	---	---	Thyroid	0.27	---	---	0.27
			Iron	---	---	---	---	Gastrointestinal	0.27	---	---	0.27
			Manganese	---	---	---	---	Nervous system	0.059	---	---	0.059
			Mercury	---	---	---	---	Nervous system	0.042	---	---	0.042
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.067	---	---	0.067
			Chemical Total	---	---	---	---		1.1	---	0.015	1.1
		Exposure Point Total					---					1.1
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00019	---	0.00019
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00072	---	0.00072
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000012	---	0.0000012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0046	---	0.0046

TABLE A-9.1d1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil		Chemical Total	---	---	---	---		---	0.011	---	0.011
		Exposure Point Total					---					0.011
	Surface Soil Total						---					1.1
Soil Total							---					1.1

Total Risk Across All Media	---
Total Hazard Across All Media	1.1
Total Nervous System HI Across All Media	0.23
Total Skin HI Across All Media	0.20
Total Thyroid HI Across All Media	0.27
Total Gastrointestinal HI Across All Media	0.27
Total Hair HI Across All Media	0.067
Total Developmental HI Across All Media	0.00019
Total Cardiovascular HI Across All Media	0.00019
Total Lung/Respiratory Tract HI Across All Media	0.0057

TABLE A-9.1d1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	3.9E-06	---	1.5E-06	5.4E-06	---	---	---	---	---
			Benzo(a)pyrene	4.5E-05	---	1.7E-05	6.2E-05	---	---	---	---	---
			Benzo(b)fluoranthene	6.0E-06	---	2.3E-06	8.3E-06	---	---	---	---	---
			Benzo(k)fluoranthene	4.9E-07	---	1.9E-07	6.8E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.6E-05	---	6.1E-06	2.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.4E-06	---	1.7E-06	6.1E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	9.9E-06	---	9.4E-07	1.1E-05	---	---	---	---	---
			Chromium Total	5.1E-05	---	---	5.1E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.4E-04	---	3.0E-05	1.7E-04		---	---	---	---
		Exposure Point Total					1.7E-04					---
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	6.5E-11	---	6.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.5E-10	---	7.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.4E-11	---	7.4E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	5.4E-09	---	5.4E-09	---	---	---	---	---
			Chromium Total	---	9.5E-07	---	9.5E-07	---	---	---	---	---

TABLE A-9.1d1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area D1	Cobalt	---	1.7E-08	---	1.7E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.2E-07	---	1.2E-07	---	---	---	---	---
			Chemical Total	---	1.1E-06	---	1.1E-06		---	---	---	---
		Exposure Point Total					1.1E-06					---
	Surface Soil Total						1.7E-04					---
Soil Total							1.7E-04					---

Total Risk Across All Media: 1.7E-04

Total Hazard Across All Media: ---

TABLE A-9.2d1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.0026	---	0.0015	0.0041
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.014	---	---	0.014
			Arsenic	---	---	---	---	Skin	0.017	---	0.0021	0.019
			Chromium Total	---	---	---	---	None observed	0.0067	---	---	0.0067
			Cobalt	---	---	---	---	Thyroid	0.027	---	---	0.027
			Iron	---	---	---	---	Gastrointestinal	0.028	---	---	0.028
			Manganese	---	---	---	---	Nervous system	0.0056	---	---	0.0056
			Mercury	---	---	---	---	Nervous system	0.0062	---	---	0.0062
			Nickel	---	---	---	---	Body weight	0.0026	---	---	0.0026
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.076	---	---	0.076
			Chemical Total	---	---	---	---		0.19	---	0.0035	0.19
		Exposure Point Total					---					0.19
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PCBs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00017	---	0.00017

TABLE A-9.2d1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00069	---	0.00069
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.0000017	---	0.0000017
			Nickel	---	---	---	---	Respiratory tract	---	0.00029	---	0.00029
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.050	---	0.050
			Chemical Total	---	---	---	---		---	0.056	---	0.056
		Exposure Point Total					---					0.056
	Aggregate Soil Total						---					0.25
Soil Total							---					0.25

Total Risk Across All Media	---
Total Hazard Across All Media	0.25
Total Eyes HI Across All Media	0.0041
Total Immune System HI Across All Media	0.0041
Total Nervous System HI Across All Media	0.031
Total Skin HI Across All Media	0.019
Total Thyroid HI Across All Media	0.027
Total Gastrointestinal HI Across All Media	0.028
Total Body Weight HI Across All Media	0.0026
Total Hair HI Across All Media	0.076
Total Developmental HI Across All Media	0.00017
Total Cardiovascular HI Across All Media	0.00017
Total Lung/Respiratory Tract HI Across All Media	0.051

TABLE A-9.2d1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.024	---	0.0095	0.034
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.13	---	---	0.13
			Arsenic	---	---	---	---	Skin	0.16	---	0.014	0.17
			Chromium Total	---	---	---	---	None observed	0.063	---	---	0.063
			Cobalt	---	---	---	---	Thyroid	0.26	---	---	0.26
			Iron	---	---	---	---	Gastrointestinal	0.26	---	---	0.26
			Manganese	---	---	---	---	Nervous system	0.052	---	---	0.052
			Mercury	---	---	---	---	Nervous system	0.058	---	---	0.058
			Nickel	---	---	---	---	Body weight	0.024	---	---	0.024
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.71	---	---	0.71
			Chemical Total	---	---	---	---		1.7	---	0.023	1.8
		Exposure Point Total					---					1.8
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PCBs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00017	---	0.00017

TABLE A-9.2d1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00069	---	0.00069
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.0000017	---	0.0000017
			Nickel	---	---	---	---	Respiratory tract	---	0.00029	---	0.00029
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.050	---	0.050
			Chemical Total	---	---	---	---		---	0.056	---	0.056
		Exposure Point Total					---					0.056
	Aggregate Soil Total						---					1.8
Soil Total							---					1.8

Total Risk Across All Media	---
Total Hazard Across All Media	1.8
Total Eyes HI Across All Media	0.034
Total Immune System HI Across All Media	0.034
Total Nervous System HI Across All Media	0.24
Total Skin HI Across All Media	0.17
Total Thyroid HI Across All Media	0.26
Total Gastrointestinal HI Across All Media	0.26
Total Body Weight HI Across All Media	0.024
Total Hair HI Across All Media	0.71
Total Developmental HI Across All Media	0.00017
Total Cardiovascular HI Across All Media	0.00017
Total Lung/Respiratory Tract HI Across All Media	0.051

TABLE A-9.2d1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.7E-06	---	1.0E-06	3.8E-06	---	---	---	---	---
			Benzo(a)pyrene	4.3E-05	---	1.6E-05	5.9E-05	---	---	---	---	---
			Benzo(b)fluoranthene	5.5E-06	---	2.1E-06	7.7E-06	---	---	---	---	---
			Benzo(k)fluoranthene	4.3E-07	---	1.6E-07	5.9E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	8.6E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-06	---	1.3E-06	4.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.2E-07	---	5.3E-08	1.7E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	8.9E-06	---	8.4E-07	9.7E-06	---	---	---	---	---
			Chromium Total	4.9E-05	---	---	4.9E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.2E-04	---	2.5E-05	1.5E-04		---	---	---	---
		Exposure Point Total					1.5E-04					---
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.2E-10	---	7.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.2E-11	---	9.2E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.1E-11	---	7.1E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.8E-11	---	5.8E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	6.4E-12	---	6.4E-12	---	---	---	---	---
			Metals									

TABLE A-9.2d1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	4.8E-09	---	4.8E-09	---	---	---	---	---
			Chromium Total	---	9.2E-07	---	9.2E-07	---	---	---	---	---
			Cobalt	---	1.6E-08	---	1.6E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	2.9E-09	---	2.9E-09	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.2E-06	---	1.2E-06	---	---	---	---	---
			Chemical Total	---	2.2E-06	---	2.2E-06		---	---	---	---
		Exposure Point Total					2.2E-06					---
	Aggregate Soil Total						1.5E-04					---
Soil Total							1.5E-04					---

Total Risk Across All Media: 1.5E-04

Total Hazard Across All Media: ---

TABLE A-9.2d1-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	9.8E-09	---	3.8E-09	1.4E-08	---	---	---	---	---
			Benzo(a)pyrene	1.5E-07	---	6.0E-08	2.1E-07	---	---	---	---	---
			Benzo(b)fluoranthene	2.0E-08	---	7.7E-09	2.8E-08	---	---	---	---	---
			Benzo(k)fluoranthene	1.5E-09	---	6.0E-10	2.1E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.1E-08	---	1.2E-08	4.3E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.2E-08	---	4.8E-09	1.7E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.8E-09	---	7.7E-10	2.6E-09	Eyes, Immune system	0.0032	---	0.0013	0.0045
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.017	---	---	0.017
			Arsenic	1.4E-07	---	1.2E-08	1.5E-07	Skin	0.021	---	0.0019	0.023
			Chromium Total	1.8E-07	---	---	1.8E-07	None observed	0.0082	---	---	0.0082
			Cobalt	---	---	---	---	Thyroid	0.034	---	---	0.034
			Iron	---	---	---	---	Gastrointestinal	0.034	---	---	0.034
			Manganese	---	---	---	---	Nervous system	0.0069	---	---	0.0069
			Mercury	---	---	---	---	Nervous system	0.0076	---	---	0.0076
			Nickel	---	---	---	---	Body weight	0.0032	---	---	0.0032
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.094	---	---	0.094
			Chemical Total	5.4E-07	---	1.0E-07	6.4E-07		0.23	---	0.0032	0.23
		Exposure Point Total					6.4E-07					0.23
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PCBs									
			Benzo(a)anthracene	---	7.5E-11	---	7.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.6E-10	---	2.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.5E-11	---	9.5E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	2.7E-11	---	2.7E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.17	---	0.17
			Arsenic	---	2.0E-08	---	2.0E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.022	---	0.022

TABLE A-9.2d1-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Chromium Total	---	1.5E-06	---	1.5E-06	Respiratory tract	---	0.013	---	0.013
			Cobalt	---	6.6E-08	---	6.6E-08	Respiratory tract	---	0.085	---	0.085
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.49	---	0.49
			Mercury	---	---	---	---	Nervous system	---	0.00021	---	0.00021
			Nickel	---	1.2E-08	---	1.2E-08	Respiratory tract	---	0.036	---	0.036
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	5.1E-06	---	5.1E-06	Larynx	---	0.43	---	0.43
			Chemical Total	---	6.8E-06	---	6.8E-06		---	1.2	---	1.2
		Exposure Point Total					6.8E-06					1.2
	Aggregate Soil Total						7.4E-06					1.5
Soil Total							7.4E-06					1.5

Total Risk Across All Media	7.4E-06
Total Hazard Across All Media	1.5
Total Eyes HI Across All Media	0.0045
Total Immune System HI Across All Media	0.0045
Total Nervous System HI Across All Media	0.71
Total Skin HI Across All Media	0.045
Total Thyroid HI Across All Media	0.034
Total Gastrointestinal HI Across All Media	0.034
Total Body Weight HI Across All Media	0.0032
Total Hair HI Across All Media	0.094
Total Developmental HI Across All Media	0.022
Total Cardiovascular HI Across All Media	0.022
Total Lung/Respiratory Tract HI Across All Media	0.58

TABLE A-9.1d1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0067	---	---	0.0067
			Arsenic	---	---	---	---	Skin	0.0096	---	0.00033	0.010
			Chromium Total	---	---	---	---	None observed	0.0035	---	---	0.0035
			Cobalt	---	---	---	---	Thyroid	0.014	---	---	0.014
			Iron	---	---	---	---	Gastrointestinal	0.014	---	---	0.014
			Manganese	---	---	---	---	Nervous system	0.0031	---	---	0.0031
			Mercury	---	---	---	---	Nervous system	0.0022	---	---	0.0022
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0036	---	---	0.0036
			Chemical Total	---	---	---	---		0.057	---	0.00033	0.058
		Exposure Point Total					---					0.058
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00019	---	0.00019
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00072	---	0.00072
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000012	---	0.0000012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0046	---	0.0046

TABLE A-9.1d1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area D1	Chemical Total	---	---	---	---		---	0.011	---	0.011
		Exposure Point Total					---					0.011
	Surface Soil Total						---					0.069
Soil Total							---					0.069

Total Risk Across All Media	---
Total Hazard Across All Media	0.069
Total Nervous System HI Across All Media	0.018
Total Skin HI Across All Media	0.010
Total Thyroid HI Across All Media	0.014
Total Gastrointestinal HI Across All Media	0.014
Total Hair HI Across All Media	0.0036
Total Developmental HI Across All Media	0.00019
Total Cardiovascular HI Across All Media	0.00019
Total Lung/Respiratory Tract HI Across All Media	0.0057

TABLE A-9.1d1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.063	---	---	0.063
			Arsenic	---	---	---	---	Skin	0.090	---	0.0030	0.093
			Chromium Total	---	---	---	---	None observed	0.032	---	---	0.032
			Cobalt	---	---	---	---	Thyroid	0.13	---	---	0.13
			Iron	---	---	---	---	Gastrointestinal	0.13	---	---	0.13
			Manganese	---	---	---	---	Nervous system	0.029	---	---	0.029
			Mercury	---	---	---	---	Nervous system	0.021	---	---	0.021
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.033	---	---	0.033
			Chemical Total	---	---	---	---		0.54	---	0.0030	0.54
		Exposure Point Total					---					0.54
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00019	---	0.00019
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00072	---	0.00072
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000012	---	0.0000012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0046	---	0.0046

TABLE A-9.1d1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area D1	Chemical Total	---	---	---	---		---	0.011	---	0.011
		Exposure Point Total					---					0.011
	Surface Soil Total						---					0.55
Soil Total							---					0.55

Total Risk Across All Media	---
Total Hazard Across All Media	0.55
Total Nervous System HI Across All Media	0.12
Total Skin HI Across All Media	0.093
Total Thyroid HI Across All Media	0.13
Total Gastrointestinal HI Across All Media	0.13
Total Hair HI Across All Media	0.033
Total Developmental HI Across All Media	0.00019
Total Cardiovascular HI Across All Media	0.00019
Total Lung/Respiratory Tract HI Across All Media	0.0057

TABLE A-9.1d1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.2E-06	---	1.7E-07	1.3E-06	---	---	---	---	---
			Benzo(a)pyrene	1.4E-05	---	2.0E-06	1.6E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.8E-06	---	2.7E-07	2.1E-06	---	---	---	---	---
			Benzo(k)fluoranthene	1.5E-07	---	2.2E-08	1.7E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.8E-06	---	7.1E-07	5.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-06	---	2.0E-07	1.5E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.6E-06	---	5.4E-08	1.6E-06	---	---	---	---	---
			Chromium Total	1.5E-05	---	---	1.5E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	4.0E-05	---	3.4E-06	4.3E-05		---	---	---	---
		Exposure Point Total					4.3E-05					---
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	3.5E-11	---	3.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	4.0E-10	---	4.0E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.4E-11	---	5.4E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.4E-11	---	4.4E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.0E-11	---	4.0E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.6E-09	---	1.6E-09	---	---	---	---	---
			Chromium Total	---	5.1E-07	---	5.1E-07	---	---	---	---	---

TABLE A-9.1d1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area D1	Cobalt	---	5.0E-09	---	5.0E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.5E-08	---	3.5E-08	---	---	---	---	---
			Chemical Total	---	5.5E-07	---	5.5E-07		---	---	---	---
		Exposure Point Total					5.5E-07					---
	Surface Soil Total						4.4E-05					---
Soil Total							4.4E-05					---

Total Risk Across All Media: 4.4E-05

Total Hazard Across All Media: ---

TABLE A-9.2d1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.0013	---	0.00021	0.0015
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0069	---	---	0.0069
			Arsenic	---	---	---	---	Skin	0.0086	---	0.00029	0.0089
			Chromium Total	---	---	---	---	None observed	0.0034	---	---	0.0034
			Cobalt	---	---	---	---	Thyroid	0.014	---	---	0.014
			Iron	---	---	---	---	Gastrointestinal	0.014	---	---	0.014
			Manganese	---	---	---	---	Nervous system	0.0028	---	---	0.0028
			Mercury	---	---	---	---	Nervous system	0.0031	---	---	0.0031
			Nickel	---	---	---	---	Body weight	0.0013	---	---	0.0013
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.038	---	---	0.038
			Chemical Total	---	---	---	---		0.093	---	0.00050	0.094
		Exposure Point Total					---					0.094
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PCBs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00017	---	0.00017

TABLE A-9.2d1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00069	---	0.00069
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.0000017	---	0.0000017
			Nickel	---	---	---	---	Respiratory tract	---	0.00029	---	0.00029
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.050	---	0.050
			Chemical Total	---	---	---	---		---	0.056	---	0.056
		Exposure Point Total					---					0.056
	Aggregate Soil Total						---					0.15
Soil Total							---					0.15

Total Risk Across All Media	---
Total Hazard Across All Media	0.15
Total Eyes HI Across All Media	0.0015
Total Immune System HI Across All Media	0.0015
Total Nervous System HI Across All Media	0.018
Total Skin HI Across All Media	0.0091
Total Thyroid HI Across All Media	0.014
Total Gastrointestinal HI Across All Media	0.014
Total Body Weight HI Across All Media	0.0013
Total Hair HI Across All Media	0.038
Total Developmental HI Across All Media	0.00017
Total Cardiovascular HI Across All Media	0.00017
Total Lung/Respiratory Tract HI Across All Media	0.051

TABLE A-9.2d1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.012	---	0.0019	0.014
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.064	---	---	0.064
			Arsenic	---	---	---	---	Skin	0.080	---	0.0027	0.083
			Chromium Total	---	---	---	---	None observed	0.031	---	---	0.031
			Cobalt	---	---	---	---	Thyroid	0.13	---	---	0.13
			Iron	---	---	---	---	Gastrointestinal	0.13	---	---	0.13
			Manganese	---	---	---	---	Nervous system	0.026	---	---	0.026
			Mercury	---	---	---	---	Nervous system	0.029	---	---	0.029
			Nickel	---	---	---	---	Body weight	0.012	---	---	0.012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.36	---	---	0.36
			Chemical Total	---	---	---	---		0.87	---	0.0046	0.87
		Exposure Point Total					---					0.87
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PCBs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00017	---	0.00017

TABLE A-9.2d1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Chromium Total	---	---	---	---	Respiratory tract	---	0.00010	---	0.00010
			Cobalt	---	---	---	---	Respiratory tract	---	0.00069	---	0.00069
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.0000017	---	0.0000017
			Nickel	---	---	---	---	Respiratory tract	---	0.00029	---	0.00029
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.050	---	0.050
			Chemical Total	---	---	---	---		---	0.056	---	0.056
		Exposure Point Total					---					0.056
	Aggregate Soil Total						---					0.93
Soil Total							---					0.93

Total Risk Across All Media	---
Total Hazard Across All Media	0.93
Total Eyes HI Across All Media	0.014
Total Immune System HI Across All Media	0.014
Total Nervous System HI Across All Media	0.12
Total Skin HI Across All Media	0.083
Total Thyroid HI Across All Media	0.13
Total Gastrointestinal HI Across All Media	0.13
Total Body Weight HI Across All Media	0.012
Total Hair HI Across All Media	0.36
Total Developmental HI Across All Media	0.00017
Total Cardiovascular HI Across All Media	0.00017
Total Lung/Respiratory Tract HI Across All Media	0.051

TABLE A-9.2d1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	8.3E-07	---	1.2E-07	9.5E-07	---	---	---	---	---
			Benzo(a)pyrene	1.3E-05	---	1.9E-06	1.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.7E-06	---	2.4E-07	1.9E-06	---	---	---	---	---
			Benzo(k)fluoranthene	1.3E-07	---	1.9E-08	1.5E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.6E-06	---	3.8E-07	3.0E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.5E-07	1.2E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.9E-08	---	3.0E-09	2.2E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.4E-06	---	4.8E-08	1.5E-06	---	---	---	---	---
			Chromium Total	1.5E-05	---	---	1.5E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	3.6E-05	---	2.9E-06	3.9E-05		---	---	---	---
		Exposure Point Total					3.9E-05					---
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	2.5E-11	---	2.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.0E-11	---	5.0E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.4E-11	---	8.4E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.1E-11	---	3.1E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.9E-12	---	1.9E-12	---	---	---	---	---
			Metals									

TABLE A-9.2d1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.4E-09	---	1.4E-09	---	---	---	---	---
			Chromium Total	---	5.0E-07	---	5.0E-07	---	---	---	---	---
			Cobalt	---	4.8E-09	---	4.8E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	8.8E-10	---	8.8E-10	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.7E-07	---	3.7E-07	---	---	---	---	---
			Chemical Total	---	8.8E-07	---	8.8E-07		---	---	---	---
		Exposure Point Total					8.8E-07					---
	Aggregate Soil Total						3.9E-05					---
Soil Total							3.9E-05					---

Total Risk Across All Media: 3.9E-05

Total Hazard Across All Media: ---

TABLE A-9.2d1-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	5.9E-10	---	2.5E-10	8.4E-10	---	---	---	---	---
			Benzo(a)pyrene	9.3E-09	---	4.0E-09	1.3E-08	---	---	---	---	---
			Benzo(b)fluoranthene	1.2E-09	---	5.1E-10	1.7E-09	---	---	---	---	---
			Benzo(k)fluoranthene	9.3E-11	---	4.0E-11	1.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.9E-09	---	8.0E-10	2.7E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	7.5E-10	---	3.2E-10	1.1E-09	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.1E-10	---	5.1E-11	1.6E-10	Eyes, Immune system	0.00019	---	0.000089	0.00028
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0010	---	---	0.0010
			Arsenic	8.2E-09	---	8.2E-10	9.0E-09	Skin	0.0013	---	0.00013	0.0014
			Chromium Total	1.1E-08	---	---	1.1E-08	None observed	0.00050	---	---	0.00050
			Cobalt	---	---	---	---	Thyroid	0.0020	---	---	0.0020
			Iron	---	---	---	---	Gastrointestinal	0.0021	---	---	0.0021
			Manganese	---	---	---	---	Nervous system	0.00042	---	---	0.00042
			Mercury	---	---	---	---	Nervous system	0.00046	---	---	0.00046
			Nickel	---	---	---	---	Body weight	0.00019	---	---	0.00019
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0057	---	---	0.0057
			Chemical Total	3.3E-08	---	6.8E-09	4.0E-08		0.014	---	0.00022	0.014
		Exposure Point Total					4.0E-08					0.014
		Air at Risk Area D1	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PCBs									
			Benzo(a)anthracene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.4E-10	---	2.4E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.0E-11	---	3.0E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-11	---	2.3E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.1E-11	---	5.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.9E-11	---	1.9E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	5.3E-12	---	5.3E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.034	---	0.034
			Arsenic	---	4.0E-09	---	4.0E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0043	---	0.0043

TABLE A-9.2d1-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D1	Chromium Total	---	3.0E-07	---	3.0E-07	Respiratory tract	---	0.0025	---	0.0025
			Cobalt	---	1.3E-08	---	1.3E-08	Respiratory tract	---	0.017	---	0.017
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.098	---	0.098
			Mercury	---	---	---	---	Nervous system	---	0.000041	---	0.000041
			Nickel	---	2.4E-09	---	2.4E-09	Respiratory tract	---	0.0073	---	0.0073
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.0E-06	---	1.0E-06	Larynx	---	0.086	---	0.086
			Chemical Total	---	1.4E-06	---	1.4E-06		---	0.25	---	0.25
		Exposure Point Total					1.4E-06					0.25
	Aggregate Soil Total						1.4E-06					0.26
Soil Total							1.4E-06					0.26

Total Risk Across All Media	1.4E-06
Total Hazard Across All Media	0.26
Total Eyes HI Across All Media	0.00028
Total Immune System HI Across All Media	0.00028
Total Nervous System HI Across All Media	0.14
Total Skin HI Across All Media	0.0057
Total Thyroid HI Across All Media	0.0020
Total Gastrointestinal HI Across All Media	0.0021
Total Body Weight HI Across All Media	0.00019
Total Hair HI Across All Media	0.0057
Total Developmental HI Across All Media	0.0043
Total Cardiovascular HI Across All Media	0.0043
Total Lung/Respiratory Tract HI Across All Media	0.12

TABLE A-9.1d3-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	9.7E-07	---	8.3E-07	1.8E-06	---	---	---	---	---
			Benzo(a)pyrene	9.7E-06	---	8.3E-06	1.8E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.4E-06	---	1.2E-06	2.7E-06	---	---	---	---	---
			Benzo(k)fluoranthene	9.2E-08	---	7.9E-08	1.7E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	7.9E-07	---	6.8E-07	1.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.2E-07	---	1.9E-07	4.1E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.010	---	---	0.010
			Arsenic	6.2E-06	---	1.2E-06	7.4E-06	Skin	0.038	---	0.0076	0.046
			Chromium Total	5.2E-06	---	---	5.2E-06	None observed	0.0096	---	---	0.0096
			Cobalt	---	---	---	---	Thyroid	0.017	---	---	0.017
			Iron	---	---	---	---	Gastrointestinal	0.018	---	---	0.018
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0028	---	---	0.0028
			Vanadium	---	---	---	---	Hair	0.010	---	---	0.010
			Chemical Total	2.5E-05	---	1.3E-05	3.7E-05		0.11	---	0.0076	0.11
		Exposure Point Total					3.7E-05					0.11
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	2.5E-11	---	2.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.6E-11	---	3.6E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-11	---	2.3E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.2E-11	---	2.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.6E-12	---	5.6E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00034	---	0.00034
			Arsenic	---	3.0E-09	---	3.0E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00013	---	0.00013
			Chromium Total	---	1.5E-07	---	1.5E-07	Respiratory tract	---	0.000048	---	0.000048
			Cobalt	---	2.8E-09	---	2.8E-09	Respiratory tract	---	0.00015	---	0.00015
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00066	---	0.00066
			Vanadium	---	4.7E-08	---	4.7E-08	Larynx	---	0.0022	---	0.0022
			Chemical Total	---	2.0E-07	---	2.0E-07		---	0.0036	---	0.0036
		Exposure Point Total					2.0E-07					0.0036
	Surface Soil Total						3.7E-05					0.12

TABLE A-9.1d3-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Total							3.7E-05					0.12

Total Risk Across All Media	3.7E-05
Total Hazard Across All Media	0.12
Total Nervous System HI Across All Media	0.014
Total Skin HI Across All Media	0.046
Total Thyroid HI Across All Media	0.017
Total Gastrointestinal HI Across All Media	0.018
Total Hair HI Across All Media	0.010
Total Developmental HI Across All Media	0.00013
Total Cardiovascular HI Across All Media	0.00013
Total Lung/Respiratory Tract HI Across All Media	0.0026

TABLE A-9.2d3-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	7.8E-07	---	6.7E-07	1.4E-06	---	---	---	---	---
			Benzo(a)pyrene	8.7E-06	---	7.4E-06	1.6E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.3E-06	---	1.1E-06	2.3E-06	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	5.7E-08	---	4.9E-08	1.1E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-06	---	2.5E-06	5.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.0E-07	---	5.2E-07	1.1E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0088	---	---	0.0088
			Arsenic	3.9E-06	---	7.8E-07	4.7E-06	Skin	0.025	---	0.0049	0.029
			Chromium Total	2.9E-06	---	---	2.9E-06	None observed	0.0055	---	---	0.0055
			Cobalt	---	---	---	---	Thyroid	0.018	---	---	0.018
			Iron	---	---	---	---	Gastrointestinal	0.019	---	---	0.019
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0034	---	---	0.0034
			Vanadium	---	---	---	---	Hair	0.0063	---	---	0.0063
			Chemical Total	2.1E-05	---	1.3E-05	3.4E-05		0.085	---	0.0049	0.090
		Exposure Point Total					3.4E-05					0.090
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.2E-11	---	3.2E-11	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00029	---	0.00029
			Arsenic	---	1.9E-09	---	1.9E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000082	---	0.000082
			Chromium Total	---	8.3E-08	---	8.3E-08	Respiratory tract	---	0.000028	---	0.000028
			Cobalt	---	2.9E-09	---	2.9E-09	Respiratory tract	---	0.00015	---	0.00015
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00079	---	0.00079
			Vanadium	---	2.8E-08	---	2.8E-08	Larynx	---	0.0014	---	0.0014
			Chemical Total	---	1.2E-07	---	1.2E-07		---	0.0027	---	0.0027
		Exposure Point Total					1.2E-07					0.0027
	Aggregate Soil Total						3.4E-05					0.092
Soil Total							3.4E-05					0.092

TABLE A-9.2d3-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	3.4E-05
Total Hazard Across All Media	0.092
Total Nervous System HI Across All Media	0.013
Total Skin HI Across All Media	0.029
Total Thyroid HI Across All Media	0.018
Total Gastrointestinal HI Across All Media	0.019
Total Hair HI Across All Media	0.0063
Total Developmental HI Across All Media	0.000082
Total Cardiovascular HI Across All Media	0.000082
Total Lung/Respiratory Tract HI Across All Media	0.0016

TABLE A-9.2d3-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	5.3E-08	---	2.1E-08	7.4E-08	---	---	---	---	---
			Benzo(a)pyrene	6.0E-07	---	2.3E-07	8.3E-07	---	---	---	---	---
			Benzo(b)fluoranthene	8.7E-08	---	3.4E-08	1.2E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	3.9E-09	---	1.5E-09	5.4E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.0E-07	---	7.9E-08	2.8E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.2E-08	---	1.6E-08	5.8E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.015	---	---	0.015
			Arsenic	2.7E-07	---	2.4E-08	3.0E-07	Skin	0.042	---	0.0038	0.046
			Chromium Total	2.0E-07	---	---	2.0E-07	None observed	0.0094	---	---	0.0094
			Cobalt	---	---	---	---	Thyroid	0.030	---	---	0.030
			Iron	---	---	---	---	Gastrointestinal	0.032	---	---	0.032
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0058	---	---	0.0058
			Vanadium	---	---	---	---	Hair	0.011	---	---	0.011
			Chemical Total	1.5E-06	---	4.1E-07	1.9E-06		0.15	---	0.0038	0.15
		Exposure Point Total					1.9E-06					0.15
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	4.1E-10	---	4.1E-10	---	---	---	---	---
			Benzo(a)pyrene	---	4.6E-09	---	4.6E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.7E-10	---	6.7E-10	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	3.0E-10	---	3.0E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.7E-09	---	1.7E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.2E-10	---	3.2E-10	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.15	---	0.15
			Arsenic	---	4.0E-08	---	4.0E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.043	---	0.043
			Chromium Total	---	1.7E-06	---	1.7E-06	Respiratory tract	---	0.014	---	0.014
			Cobalt	---	6.0E-08	---	6.0E-08	Respiratory tract	---	0.077	---	0.077
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.41	---	0.41
			Vanadium	---	5.9E-07	---	5.9E-07	Larynx	---	0.049	---	0.049
			Chemical Total	---	2.4E-06	---	2.4E-06		---	0.75	---	0.75
		Exposure Point Total					2.4E-06					0.75
	Aggregate Soil Total						4.3E-06					0.90
Soil Total							4.3E-06					0.90

TABLE A-9.2d3-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	4.3E-06
Total Hazard Across All Media	0.90
Total Nervous System HI Across All Media	0.63
Total Skin HI Across All Media	0.089
Total Thyroid HI Across All Media	0.030
Total Gastrointestinal HI Across All Media	0.032
Total Hair HI Across All Media	0.011
Total Developmental HI Across All Media	0.043
Total Cardiovascular HI Across All Media	0.043
Total Lung/Respiratory Tract HI Across All Media	0.18

TABLE A-9.1d3-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	1.5E-07	---	2.6E-08	1.8E-07	---	---	---	---	---
			Benzo(a)pyrene	1.5E-06	---	2.6E-07	1.8E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.3E-07	---	3.9E-08	2.6E-07	---	---	---	---	---
			Benzo(k)fluoranthene	1.4E-08	---	2.5E-09	1.7E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.2E-07	---	2.1E-08	1.5E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-08	---	5.9E-09	4.1E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0045	---	---	0.0045
			Arsenic	9.8E-07	---	3.9E-08	1.0E-06	Skin	0.017	---	0.00067	0.018
			Chromium Total	8.1E-07	---	---	8.1E-07	None observed	0.0042	---	---	0.0042
			Cobalt	---	---	---	---	Thyroid	0.0076	---	---	0.0076
			Iron	---	---	---	---	Gastrointestinal	0.0080	---	---	0.0080
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0012	---	---	0.0012
			Vanadium	---	---	---	---	Hair	0.0046	---	---	0.0046
			Chemical Total	3.9E-06	---	4.0E-07	4.3E-06		0.047	---	0.00067	0.048
		Exposure Point Total					4.3E-06					0.048
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	7.7E-12	---	7.7E-12	---	---	---	---	---
			Benzo(a)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.3E-12	---	7.3E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.9E-12	---	6.9E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.8E-12	---	1.8E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00030	---	0.00030
			Arsenic	---	9.4E-10	---	9.4E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00011	---	0.00011
			Chromium Total	---	4.6E-08	---	4.6E-08	Respiratory tract	---	0.000042	---	0.000042
			Cobalt	---	8.8E-10	---	8.8E-10	Respiratory tract	---	0.00013	---	0.00013
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00058	---	0.00058
			Vanadium	---	1.5E-08	---	1.5E-08	Larynx	---	0.0020	---	0.0020
			Chemical Total	---	6.3E-08	---	6.3E-08		---	0.0031	---	0.0031
		Exposure Point Total					6.3E-08					0.0031
	Surface Soil Total						4.3E-06					0.051

TABLE A-9.1d3-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Total							4.3E-06					0.051

Total Risk Across All Media	4.3E-06
Total Hazard Across All Media	0.051
Total Nervous System HI Across All Media	0.0067
Total Skin HI Across All Media	0.018
Total Thyroid HI Across All Media	0.0076
Total Gastrointestinal HI Across All Media	0.0080
Total Hair HI Across All Media	0.0046
Total Developmental HI Across All Media	0.00011
Total Cardiovascular HI Across All Media	0.00011
Total Lung/Respiratory Tract HI Across All Media	0.0023

TABLE A-9.2d3-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	1.2E-07	---	2.1E-08	1.4E-07	---	---	---	---	---
			Benzo(a)pyrene	1.4E-06	---	2.3E-07	1.6E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.0E-07	---	3.4E-08	2.3E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	8.9E-09	---	1.5E-09	1.0E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.6E-07	---	7.9E-08	5.4E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	9.5E-08	---	1.6E-08	1.1E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0038	---	---	0.0038
			Arsenic	6.2E-07	---	2.5E-08	6.5E-07	Skin	0.011	---	0.00043	0.011
			Chromium Total	4.6E-07	---	---	4.6E-07	None observed	0.0024	---	---	0.0024
			Cobalt	---	---	---	---	Thyroid	0.0078	---	---	0.0078
			Iron	---	---	---	---	Gastrointestinal	0.0081	---	---	0.0081
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0015	---	---	0.0015
			Vanadium	---	---	---	---	Hair	0.0027	---	---	0.0027
			Chemical Total	3.3E-06	---	4.1E-07	3.8E-06		0.037	---	0.00043	0.038
		Exposure Point Total					3.8E-06					0.038
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	6.2E-12	---	6.2E-12	---	---	---	---	---
			Benzo(a)pyrene	---	6.9E-11	---	6.9E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-11	---	1.0E-11	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.5E-12	---	4.5E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.6E-11	---	2.6E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.8E-12	---	4.8E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00026	---	0.00026
			Arsenic	---	6.0E-10	---	6.0E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000072	---	0.000072
			Chromium Total	---	2.6E-08	---	2.6E-08	Respiratory tract	---	0.000024	---	0.000024
			Cobalt	---	9.0E-10	---	9.0E-10	Respiratory tract	---	0.00013	---	0.00013
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00069	---	0.00069
			Vanadium	---	9.0E-09	---	9.0E-09	Larynx	---	0.0012	---	0.0012
			Chemical Total	---	3.7E-08	---	3.7E-08		---	0.0024	---	0.0024
		Exposure Point Total					3.7E-08					0.0024
	Aggregate Soil Total						3.8E-06					0.040

TABLE A-9.2d3-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Total							3.8E-06					0.040

Total Risk Across All Media	3.8E-06
Total Hazard Across All Media	0.040
Total Nervous System HI Across All Media	0.0063
Total Skin HI Across All Media	0.011
Total Thyroid HI Across All Media	0.0078
Total Gastrointestinal HI Across All Media	0.0081
Total Hair HI Across All Media	0.0027
Total Developmental HI Across All Media	0.000072
Total Cardiovascular HI Across All Media	0.000072
Total Lung/Respiratory Tract HI Across All Media	0.0014

TABLE A-9.2d3-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	3.2E-09	---	1.4E-09	4.6E-09	---	---	---	---	---
			Benzo(a)pyrene	3.6E-08	---	1.5E-08	5.2E-08	---	---	---	---	---
			Benzo(b)fluoranthene	5.3E-09	---	2.3E-09	7.5E-09	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	2.4E-10	---	1.0E-10	3.4E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.2E-08	---	5.2E-09	1.7E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.5E-09	---	1.1E-09	3.6E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00091	---	---	0.00091
			Arsenic	1.6E-08	---	1.6E-09	1.8E-08	Skin	0.0026	---	0.00025	0.0028
			Chromium Total	1.2E-08	---	---	1.2E-08	None observed	0.00057	---	---	0.00057
			Cobalt	---	---	---	---	Thyroid	0.0018	---	---	0.0018
			Iron	---	---	---	---	Gastrointestinal	0.0019	---	---	0.0019
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00035	---	---	0.00035
			Vanadium	---	---	---	---	Hair	0.00065	---	---	0.00065
			Chemical Total	8.8E-08	---	2.7E-08	1.2E-07		0.0088	---	0.00025	0.0091
		Exposure Point Total					1.2E-07					0.0091
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			Benzo(a)pyrene	---	9.1E-10	---	9.1E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	6.0E-11	---	6.0E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.4E-10	---	3.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.4E-11	---	6.4E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.031	---	0.031
			Arsenic	---	7.9E-09	---	7.9E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0086	---	0.0086
			Chromium Total	---	3.4E-07	---	3.4E-07	Respiratory tract	---	0.0029	---	0.0029
			Cobalt	---	1.2E-08	---	1.2E-08	Respiratory tract	---	0.015	---	0.015
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.082	---	0.082
			Vanadium	---	1.2E-07	---	1.2E-07	Larynx	---	0.0099	---	0.0099
			Chemical Total	---	4.8E-07	---	4.8E-07		---	0.15	---	0.15
		Exposure Point Total					4.8E-07					0.15
Soil	Aggregate Soil Total						6.0E-07					0.16
Soil Total							6.0E-07					0.16

TABLE A-9.2d3-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	6.0E-07

Total Hazard Across All Media	0.16
Total Nervous System HI Across All Media	0.12
Total Skin HI Across All Media	0.011
Total Thyroid HI Across All Media	0.0018
Total Gastrointestinal HI Across All Media	0.0019
Total Hair HI Across All Media	0.00065
Total Developmental HI Across All Media	0.0086
Total Cardiovascular HI Across All Media	0.0086
Total Lung/Respiratory Tract HI Across All Media	0.037

TABLE A-9.1e1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	6.2E-07	---	3.2E-07	9.5E-07	---	---	---	---	---
			Benzo(a)pyrene	5.1E-06	---	2.7E-06	7.8E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.6E-07	---	1.8E-07	5.4E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	6.0E-07	---	3.1E-07	9.1E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.9E-07	---	1.5E-07	4.4E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	6.2E-08	---	3.5E-08	9.7E-08	Eyes, Immune system	0.0045	---	0.0025	0.0071
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.011	---	---	0.011
			Arsenic	2.5E-06	---	3.0E-07	2.8E-06	Skin	0.016	---	0.0019	0.018
			Chromium Total	4.0E-06	---	---	4.0E-06	None observed	0.0077	---	---	0.0077
			Cobalt	---	---	---	---	Thyroid	0.022	---	---	0.022
			Iron	---	---	---	---	Gastrointestinal	0.023	---	---	0.023
			Manganese	---	---	---	---	Nervous system	0.0052	---	---	0.0052
			Vanadium	---	---	---	---	Hair	0.0099	---	---	0.0099
			Chemical Total	1.4E-05	---	4.0E-06	1.7E-05		0.099	---	0.0044	0.10
		Exposure Point Total					1.7E-05					0.10
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Benzo(a)pyrene	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.7E-11	---	2.7E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.0E-11	---	5.0E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.2E-11	---	2.2E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	9.0E-12	---	9.0E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0011	---	0.0011
			Arsenic	---	3.6E-09	---	3.6E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00016	---	0.00016
			Chromium Total	---	3.4E-07	---	3.4E-07	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	1.0E-08	---	1.0E-08	Respiratory tract	---	0.00054	---	0.00054
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Vanadium	---	1.3E-07	---	1.3E-07	Larynx	---	0.0064	---	0.0064
			Chemical Total	---	4.8E-07	---	4.8E-07		---	0.012	---	0.012
		Exposure Point Total					4.8E-07					0.012
	Surface Soil Total						1.8E-05					0.12
Soil Total							1.8E-05					0.12

TABLE A-9.1e1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.8E-05
Total Hazard Across All Media	0.12
Total Eyes HI Across All Media	0.0071
Total Immune System HI Across All Media	0.0071
Total Nervous System HI Across All Media	0.021
Total Skin HI Across All Media	0.018
Total Thyroid HI Across All Media	0.022
Total Gastrointestinal HI Across All Media	0.023
Total Hair HI Across All Media	0.0099
Total Developmental HI Across All Media	0.00016
Total Cardiovascular HI Across All Media	0.00016
Total Lung/Respiratory Tract HI Across All Media	0.0072

TABLE A-9.1e1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.042	---	0.017	0.059
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.10	---	---	0.10
			Arsenic	---	---	---	---	Skin	0.15	---	0.013	0.16
			Chromium Total	---	---	---	---	None observed	0.072	---	---	0.072
			Cobalt	---	---	---	---	Thyroid	0.20	---	---	0.20
			Iron	---	---	---	---	Gastrointestinal	0.22	---	---	0.22
			Manganese	---	---	---	---	Nervous system	0.049	---	---	0.049
			Vanadium	---	---	---	---	Hair	0.092	---	---	0.092
			Chemical Total	---	---	---	---		0.92	---	0.029	0.95
		Exposure Point Total					---					0.95
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0011	---	0.0011
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00016	---	0.00016
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	---	---	---	Respiratory tract	---	0.00054	---	0.00054
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Vanadium	---	---	---	---	Larynx	---	0.0064	---	0.0064
			Chemical Total	---	---	---	---		---	0.012	---	0.012
		Exposure Point Total					---					0.012
	Surface Soil Total						---					0.96
Soil Total							---					0.96

TABLE A-9.1e1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	---
Total Hazard Across All Media	0.96
Total Eyes HI Across All Media	0.059
Total Immune System HI Across All Media	0.059
Total Nervous System HI Across All Media	0.16
Total Skin HI Across All Media	0.16
Total Thyroid HI Across All Media	0.20
Total Gastrointestinal HI Across All Media	0.22
Total Hair HI Across All Media	0.092
Total Developmental HI Across All Media	0.00016
Total Cardiovascular HI Across All Media	0.00016
Total Lung/Respiratory Tract HI Across All Media	0.0072

TABLE A-9.1e1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	8.9E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	7.3E-05	---	2.8E-05	1.0E-04	---	---	---	---	---
			Benzo(b)fluoranthene	5.1E-06	---	2.0E-06	7.0E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	8.6E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.2E-06	---	1.6E-06	5.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	2.1E-07	---	9.2E-08	3.0E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	8.2E-06	---	7.8E-07	9.0E-06	---	---	---	---	---
			Chromium Total	5.7E-05	---	---	5.7E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.7E-04	---	3.9E-05	2.0E-04		---	---	---	---
		Exposure Point Total					2.0E-04					---
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.5E-11	---	8.5E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.0E-11	---	7.0E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	4.5E-09	---	4.5E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Cobalt	---	1.3E-08	---	1.3E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.6E-07	---	1.6E-07	---	---	---	---	---
			Chemical Total	---	1.2E-06	---	1.2E-06		---	---	---	---
		Exposure Point Total					1.2E-06					---
	Surface Soil Total						2.1E-04					---
Soil Total							2.1E-04					---

TABLE A-9.1e1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media: 2.1E-04

Total Hazard Across All Media: ---

TABLE A-9.1e1-4 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	3.5E-06	---	1.3E-06	4.7E-06	---	---	---	---	---
			Benzo(a)pyrene	2.8E-05	---	1.0E-05	3.9E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.0E-06	---	7.2E-07	2.7E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.3E-06	---	1.2E-06	4.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-06	---	5.9E-07	2.2E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	6.5E-08	---	2.5E-08	9.0E-08	Eyes, Immune system	0.019	---	0.0074	0.026
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.046	---	---	0.046
			Arsenic	2.6E-06	---	2.2E-07	2.8E-06	Skin	0.066	---	0.0056	0.072
			Chromium Total	2.2E-05	---	---	2.2E-05	None observed	0.032	---	---	0.032
			Cobalt	---	---	---	---	Thyroid	0.090	---	---	0.090
			Iron	---	---	---	---	Gastrointestinal	0.096	---	---	0.096
			Manganese	---	---	---	---	Nervous system	0.022	---	---	0.022
			Vanadium	---	---	---	---	Hair	0.041	---	---	0.041
			Chemical Total	6.4E-05	---	1.4E-05	7.8E-05		0.41	---	0.013	0.42
		Exposure Point Total					7.8E-05					0.42
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	9.3E-12	---	9.3E-12	---	---	---	---	---
			Benzo(a)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.3E-12	---	5.3E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	9.8E-12	---	9.8E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.4E-12	---	4.4E-12	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.3E-13	---	3.3E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00016	---	0.00016
			Arsenic	---	1.3E-10	---	1.3E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000024	---	0.000024
			Chromium Total	---	6.6E-08	---	6.6E-08	Respiratory tract	---	0.000017	---	0.000017
			Cobalt	---	3.7E-10	---	3.7E-10	Respiratory tract	---	0.000081	---	0.000081
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00055	---	0.00055
			Vanadium	---	4.8E-09	---	4.8E-09	Larynx	---	0.00095	---	0.00095
			Chemical Total	---	7.2E-08	---	7.2E-08		---	0.0018	---	0.0018
		Exposure Point Total					7.2E-08					0.0018
	Surface Soil Total						7.8E-05					0.43
Soil Total							7.8E-05					0.43

TABLE A-9.1e1-4 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	7.8E-05

Total Hazard Across All Media	0.43
Total Eyes HI Across All Media	0.026
Total Immune System HI Across All Media	0.026
Total Nervous System HI Across All Media	0.068
Total Skin HI Across All Media	0.072
Total Thyroid HI Across All Media	0.090
Total Gastrointestinal HI Across All Media	0.096
Total Hair HI Across All Media	0.041
Total Developmental HI Across All Media	0.000024
Total Cardiovascular HI Across All Media	0.000024
Total Lung/Respiratory Tract HI Across All Media	0.0011

TABLE A-9.1e1-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	4.2E-07	---	3.6E-07	7.8E-07	---	---	---	---	---
			Benzo(a)pyrene	3.4E-06	---	3.0E-06	6.4E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.4E-07	---	2.0E-07	4.4E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.0E-07	---	3.4E-07	7.5E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.0E-07	---	1.7E-07	3.6E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	4.2E-08	---	3.9E-08	8.0E-08	Eyes, Immune system	0.0029	---	0.0027	0.0056
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0070	---	---	0.0070
			Arsenic	1.7E-06	---	3.3E-07	2.0E-06	Skin	0.010	---	0.0020	0.012
			Chromium Total	2.7E-06	---	---	2.7E-06	None observed	0.0050	---	---	0.0050
			Cobalt	---	---	---	---	Thyroid	0.014	---	---	0.014
			Iron	---	---	---	---	Gastrointestinal	0.015	---	---	0.015
			Manganese	---	---	---	---	Nervous system	0.0033	---	---	0.0033
			Vanadium	---	---	---	---	Hair	0.0064	---	---	0.0064
			Chemical Total	9.0E-06	---	4.4E-06	1.3E-05		0.064	---	0.0047	0.068
		Exposure Point Total					1.3E-05					0.068
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	8.7E-11	---	8.7E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.0E-12	---	6.0E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.0E-12	---	5.0E-12	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	2.0E-12	---	2.0E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00024	---	0.00024
			Arsenic	---	7.9E-10	---	7.9E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000035	---	0.000035
			Chromium Total	---	7.5E-08	---	7.5E-08	Respiratory tract	---	0.000025	---	0.000025
			Cobalt	---	2.3E-09	---	2.3E-09	Respiratory tract	---	0.00012	---	0.00012
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00079	---	0.00079
			Vanadium	---	2.9E-08	---	2.9E-08	Larynx	---	0.0014	---	0.0014
			Chemical Total	---	1.1E-07	---	1.1E-07		---	0.0026	---	0.0026
		Exposure Point Total					1.1E-07					0.0026
	Surface Soil Total						1.4E-05					0.071
Soil Total							1.4E-05					0.071

TABLE A-9.1e1-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.4E-05
Total Hazard Across All Media	0.071
Total Eyes HI Across All Media	0.0056
Total Immune System HI Across All Media	0.0056
Total Nervous System HI Across All Media	0.011
Total Skin HI Across All Media	0.012
Total Thyroid HI Across All Media	0.014
Total Gastrointestinal HI Across All Media	0.015
Total Hair HI Across All Media	0.0064
Total Developmental HI Across All Media	0.000035
Total Cardiovascular HI Across All Media	0.000035
Total Lung/Respiratory Tract HI Across All Media	0.0016

TABLE A-9.2e1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.016	---	0.0019	0.017
			Hexachlorobenzene	---	---	---	---	Liver	0.00064	---	0.00026	0.00090
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.0063	---	0.0035	0.0098
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	0.0000050	---	---	0.0000050
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.012	---	---	0.012
			Arsenic	---	---	---	---	Skin	0.015	---	0.0018	0.017
			Chromium Total	---	---	---	---	None observed	0.0082	---	---	0.0082
			Cobalt	---	---	---	---	Thyroid	0.025	---	---	0.025
			Iron	---	---	---	---	Gastrointestinal	0.026	---	---	0.026
			Manganese	---	---	---	---	Nervous system	0.0051	---	---	0.0051
			Mercury	---	---	---	---	Nervous system	0.0047	---	---	0.0047
			Vanadium	---	---	---	---	Hair	0.062	---	---	0.062
			Chemical Total	---	---	---	---		0.18	---	0.0074	0.19
		Exposure Point Total					---					0.19
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000020	---	0.00000020
			Hexachlorobenzene	---	---	---	---	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---

TABLE A-9.2e1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	---	0.0000030	---	0.0000030
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00015	---	0.00015
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	---	---	---	Respiratory tract	---	0.00064	---	0.00064
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0036	---	0.0036
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Vanadium	---	---	---	---	Larynx	---	0.040	---	0.040
			Chemical Total	---	---	---	---		---	0.046	---	0.046
		Exposure Point Total					---					0.046
	Aggregate Soil Total						---					0.23
Soil Total							---					0.23

Total Risk Across All Media	---
Total Hazard Across All Media	0.23
Total Developmental HI Across All Media	0.018
Total Liver HI Across All Media	0.00091
Total Eyes HI Across All Media	0.0098
Total Immune System HI Across All Media	0.0098
Total Nervous System HI Across All Media	0.026
Total Skin HI Across All Media	0.017
Total Thyroid HI Across All Media	0.025
Total Gastrointestinal HI Across All Media	0.026
Total Hair HI Across All Media	0.062
Total Reproductive System HI Across All Media	0.00000020
Total Endocrine System HI Across All Media	0.00000020
Total Blood HI Across All Media	0.00000020
Total Cardiovascular HI Across All Media	0.00015

TABLE A-9.2e1-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
											Total Lung/Respiratory Tract HI Across All Media	0.041

TABLE A-9.2e1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.15	---	0.012	0.16
			Hexachlorobenzene	---	---	---	---	Liver	0.0060	---	0.0017	0.0077
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.058	---	0.023	0.081
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	0.000047	---	---	0.000047
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.11	---	---	0.11
			Arsenic	---	---	---	---	Skin	0.14	---	0.012	0.15
			Chromium Total	---	---	---	---	None observed	0.077	---	---	0.077
			Cobalt	---	---	---	---	Thyroid	0.24	---	---	0.24
			Iron	---	---	---	---	Gastrointestinal	0.25	---	---	0.25
			Manganese	---	---	---	---	Nervous system	0.048	---	---	0.048
			Mercury	---	---	---	---	Nervous system	0.044	---	---	0.044
			Vanadium	---	---	---	---	Hair	0.58	---	---	0.58
			Chemical Total	---	---	---	---		1.7	---	0.049	1.7
		Exposure Point Total					---					1.7
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000020	---	0.00000020
			Hexachlorobenzene	---	---	---	---	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---

TABLE A-9.2e1-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	---	0.0000030	---	0.0000030
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00015	---	0.00015
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	---	---	---	Respiratory tract	---	0.00064	---	0.00064
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0036	---	0.0036
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Vanadium	---	---	---	---	Larynx	---	0.040	---	0.040
			Chemical Total	---	---	---	---		---	0.046	---	0.046
		Exposure Point Total					---					0.046
	Aggregate Soil Total						---					1.8
Soil Total							---					1.8

Total Risk Across All Media	---
Total Hazard Across All Media	1.8
Total Developmental HI Across All Media	0.16
Total Liver HI Across All Media	0.0077
Total Eyes HI Across All Media	0.081
Total Immune System HI Across All Media	0.081
Total Nervous System HI Across All Media	0.20
Total Skin HI Across All Media	0.15
Total Thyroid HI Across All Media	0.24
Total Gastrointestinal HI Across All Media	0.25
Total Hair HI Across All Media	0.58
Total Reproductive System HI Across All Media	0.00000020
Total Endocrine System HI Across All Media	0.00000020
Total Blood HI Across All Media	0.00000020
Total Cardiovascular HI Across All Media	0.00015
Total Lung/Respiratory Tract HI Across All Media	0.041

TABLE A-9.2e1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	6.5E-07	---	---	6.5E-07	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	2.3E-06	---	2.2E-07	2.5E-06	---	---	---	---	---
			Hexachlorobenzene	9.4E-07	---	3.0E-07	1.2E-06	---	---	---	---	---
			N-Nitrosodi-n-propylamine	4.1E-06	---	1.3E-06	5.4E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.7E-05	---	1.0E-05	3.7E-05	---	---	---	---	---
			Benzo(a)pyrene	2.4E-04	---	9.0E-05	3.3E-04	---	---	---	---	---
			Benzo(b)fluoranthene	3.5E-05	---	1.3E-05	4.8E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.4E-06	---	5.2E-07	1.9E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.0E-05	---	4.0E-06	1.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.2E-06	---	2.0E-06	7.2E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	2.9E-07	---	1.3E-07	4.1E-07	---	---	---	---	---
			Aroclor-1260	4.2E-07	---	1.9E-07	6.1E-07	---	---	---	---	---
			Vinyl chloride	1.2E-07	---	---	1.2E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	7.8E-06	---	7.4E-07	8.6E-06	---	---	---	---	---
			Chromium Total	6.0E-05	---	---	6.0E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	3.9E-04	---	1.2E-04	5.1E-04		---	---	---	---
		Exposure Point Total					5.1E-04					---
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Hexachlorobenzene	---	5.1E-11	---	5.1E-11	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.5E-10	---	4.5E-10	---	---	---	---	---

TABLE A-9.2e1-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	3.9E-09	---	3.9E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.8E-10	---	5.8E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	8.7E-11	---	8.7E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Aroclor-1260	---	2.3E-11	---	2.3E-11	---	---	---	---	---
			Vinyl chloride	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	4.2E-09	---	4.2E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Cobalt	---	1.5E-08	---	1.5E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.0E-06	---	1.0E-06	---	---	---	---	---
			Chemical Total	---	3.3E-06	---	3.3E-06		---	---	---	---
		Exposure Point Total					3.3E-06					---
	Aggregate Soil Total						5.2E-04					---
Soil Total							5.2E-04					---

Total Risk Across All Media: 5.2E-04

Total Hazard Across All Media: ---

TABLE A-9.2e1-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	9.9E-09	---	---	9.9E-09	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	3.6E-08	---	3.2E-09	3.9E-08	Developmental	0.019	---	0.0017	0.021
			Hexachlorobenzene	1.4E-08	---	4.3E-09	1.9E-08	Liver	0.00079	---	0.00024	0.0010
			N-Nitrosodi-n-propylamine	6.3E-08	---	1.9E-08	8.2E-08	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	9.6E-08	---	3.8E-08	1.3E-07	---	---	---	---	---
			Benzo(a)pyrene	8.4E-07	---	3.3E-07	1.2E-06	---	---	---	---	---
			Benzo(b)fluoranthene	1.2E-07	---	4.9E-08	1.7E-07	---	---	---	---	---
			Benzo(k)fluoranthene	4.9E-09	---	1.9E-09	6.8E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.7E-08	---	1.4E-08	5.1E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.9E-08	---	7.3E-09	2.6E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	**4.4E-09**	---	**1.8E-09**	**6.2E-09**	**Eyes, Immune system**	**0.0077**	---	**0.0032**	**0.011**
			Aroclor-1260	6.4E-09	---	2.7E-09	9.1E-09	---	---	---	---	---
			Vinyl chloride	1.9E-10	---	---	1.9E-10	Liver	0.0000062	---	---	0.0000062
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.014	---	---	0.014
			Arsenic	1.2E-07	---	1.1E-08	1.3E-07	Skin	0.019	---	0.0017	0.020
			Chromium Total	2.2E-07	---	---	2.2E-07	None observed	0.010	---	---	0.010
			Cobalt	---	---	---	---	Thyroid	0.031	---	---	0.031
			Iron	---	---	---	---	Gastrointestinal	0.032	---	---	0.032
			Manganese	---	---	---	---	Nervous system	0.0063	---	---	0.0063
			Mercury	---	---	---	---	Nervous system	0.0058	---	---	0.0058
			Vanadium	---	---	---	---	Hair	0.076	---	---	0.076
			Chemical Total	1.6E-06	---	4.8E-07	2.1E-06		0.22	---	0.0069	0.23
		Exposure Point Total					2.1E-06					0.23
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	2.6E-08	---	2.6E-08	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	5.3E-10	---	5.3E-10	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000024	---	0.000024
			Hexachlorobenzene	---	2.1E-10	---	2.1E-10	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	9.2E-10	---	9.2E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	7.4E-10	---	7.4E-10	---	---	---	---	---

TABLE A-9.2e1-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	6.5E-09	---	6.5E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.6E-10	---	9.6E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	3.8E-10	---	3.8E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	6.4E-11	---	6.4E-11	---	---	---	---	---
			Aroclor-1260	---	9.3E-11	---	9.3E-11	---	---	---	---	---
			Vinyl chloride	---	1.3E-11	---	1.3E-11	Liver	---	0.0000020	---	0.0000020
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.14	---	0.14
			Arsenic	---	1.8E-08	---	1.8E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.019	---	0.019
			Chromium Total	---	1.9E-06	---	1.9E-06	Respiratory tract	---	0.015	---	0.015
			Cobalt	---	6.1E-08	---	6.1E-08	Respiratory tract	---	0.079	---	0.079
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.45	---	0.45
			Mercury	---	---	---	---	Nervous system	---	0.00016	---	0.00016
			Vanadium	---	4.2E-06	---	4.2E-06	Larynx	---	0.35	---	0.35
			Chemical Total	---	6.1E-06	---	6.1E-06		---	1.1	---	1.1
		Exposure Point Total					6.1E-06					1.1
	Aggregate Soil Total						8.2E-06					1.3
Soil Total							8.2E-06					1.3

Total Risk Across All Media	8.2E-06
Total Hazard Across All Media	1.3
Total Developmental HI Across All Media	0.040
Total Liver HI Across All Media	0.0011
Total Eyes HI Across All Media	0.011
Total Immune System HI Across All Media	0.011
Total Nervous System HI Across All Media	0.63
Total Skin HI Across All Media	0.039
Total Thyroid HI Across All Media	0.031
Total Gastrointestinal HI Across All Media	0.032
Total Hair HI Across All Media	0.076
Total Reproductive System HI Across All Media	0.000024
Total Endocrine System HI Across All Media	0.000024
Total Blood HI Across All Media	0.000024
Total Cardiovascular HI Across All Media	0.019
Total Lung/Respiratory Tract HI Across All Media	0.46

TABLE A-9.1e1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	9.1E-08	---	1.4E-08	1.0E-07	---	---	---	---	---
			Benzo(a)pyrene	7.5E-07	---	1.1E-07	8.6E-07	---	---	---	---	---
			Benzo(b)fluoranthene	5.2E-08	---	7.7E-09	6.0E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	8.8E-08	---	1.3E-08	1.0E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.3E-08	---	6.3E-09	4.9E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	9.1E-09	---	1.4E-09	1.1E-08	Eyes, Immune system	0.0023	---	0.00036	0.0026
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0055	---	---	0.0055
			Arsenic	3.6E-07	---	1.2E-08	3.7E-07	Skin	0.0080	---	0.00027	0.0083
			Chromium Total	5.8E-07	---	---	5.8E-07	None observed	0.0039	---	---	0.0039
			Cobalt	---	---	---	---	Thyroid	0.011	---	---	0.011
			Iron	---	---	---	---	Gastrointestinal	0.012	---	---	0.012
			Manganese	---	---	---	---	Nervous system	0.0026	---	---	0.0026
			Vanadium	---	---	---	---	Hair	0.0049	---	---	0.0049
			Chemical Total	2.0E-06	---	1.7E-07	2.1E-06		0.049	---	0.00064	0.050
		Exposure Point Total					2.1E-06					0.050
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	7.9E-12	---	7.9E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.5E-12	---	6.5E-12	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	2.6E-12	---	2.6E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0011	---	0.0011
			Arsenic	---	1.0E-09	---	1.0E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00016	---	0.00016
			Chromium Total	---	9.8E-08	---	9.8E-08	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	2.9E-09	---	2.9E-09	Respiratory tract	---	0.00054	---	0.00054
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Vanadium	---	3.8E-08	---	3.8E-08	Larynx	---	0.0064	---	0.0064
			Chemical Total	---	1.4E-07	---	1.4E-07		---	0.012	---	0.012
		Exposure Point Total					1.4E-07					0.012
Soil	Surface Soil Total						2.3E-06					0.062
Soil Total							2.3E-06					0.062

TABLE A-9.1e1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	2.3E-06

Total Hazard Across All Media	0.062
Total Eyes HI Across All Media	0.0026
Total Immune System HI Across All Media	0.0026
Total Nervous System HI Across All Media	0.013
Total Skin HI Across All Media	0.0084
Total Thyroid HI Across All Media	0.011
Total Gastrointestinal HI Across All Media	0.012
Total Hair HI Across All Media	0.0049
Total Developmental HI Across All Media	0.00016
Total Cardiovascular HI Across All Media	0.00016
Total Lung/Respiratory Tract HI Across All Media	0.0072

TABLE A-9.1e1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.021	---	0.0033	0.025
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.051	---	---	0.051
			Arsenic	---	---	---	---	Skin	0.075	---	0.0025	0.077
			Chromium Total	---	---	---	---	None observed	0.036	---	---	0.036
			Cobalt	---	---	---	---	Thyroid	0.10	---	---	0.10
			Iron	---	---	---	---	Gastrointestinal	0.11	---	---	0.11
			Manganese	---	---	---	---	Nervous system	0.024	---	---	0.024
			Vanadium	---	---	---	---	Hair	0.046	---	---	0.046
			Chemical Total	---	---	---	---		0.46	---	0.0058	0.47
		Exposure Point Total					---					0.47
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0011	---	0.0011
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00016	---	0.00016
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	---	---	---	Respiratory tract	---	0.00054	---	0.00054
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Vanadium	---	---	---	---	Larynx	---	0.0064	---	0.0064
			Chemical Total	---	---	---	---		---	0.012	---	0.012
		Exposure Point Total					---					0.012
	Surface Soil Total						---					0.48
Soil Total							---					0.48

TABLE A-9.1e1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	---
Total Hazard Across All Media	0.48
Total Eyes HI Across All Media	0.025
Total Immune System HI Across All Media	0.025
Total Nervous System HI Across All Media	0.080
Total Skin HI Across All Media	0.077
Total Thyroid HI Across All Media	0.10
Total Gastrointestinal HI Across All Media	0.11
Total Hair HI Across All Media	0.046
Total Developmental HI Across All Media	0.00016
Total Cardiovascular HI Across All Media	0.00016
Total Lung/Respiratory Tract HI Across All Media	0.0072

TABLE A-9.1e1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.7E-06	---	3.9E-07	3.1E-06	---	---	---	---	---
			Benzo(a)pyrene	2.2E-05	---	3.2E-06	2.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.5E-06	---	2.2E-07	1.8E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.6E-06	---	3.8E-07	3.0E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-06	---	1.8E-07	1.4E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	3.3E-08	---	5.2E-09	3.9E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.3E-06	---	4.5E-08	1.4E-06	---	---	---	---	---
			Chromium Total	1.7E-05	---	---	1.7E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	4.9E-05	---	4.5E-06	5.3E-05		---	---	---	---
		Exposure Point Total					5.3E-05					---
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	8.0E-11	---	8.0E-11	---	---	---	---	---
			Benzo(a)pyrene	---	6.6E-10	---	6.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.4E-11	---	8.4E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.4E-12	---	3.4E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Chromium Total	---	5.7E-07	---	5.7E-07	---	---	---	---	---
			Cobalt	---	3.8E-09	---	3.8E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Vanadium	---	4.8E-08	---	4.8E-08	---	---	---	---	---
			Chemical Total	---	6.2E-07	---	6.2E-07		---	---	---	---
		Exposure Point Total					6.2E-07					---
Soil	Surface Soil Total						5.4E-05					---
Soil Total							5.4E-05					---

TABLE A-9.1e1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media: 5.4E-05

Total Hazard Across All Media: ---

TABLE A-9.1e1-4 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	5.4E-07	---	7.9E-08	6.2E-07	---	---	---	---	---
			Benzo(a)pyrene	4.5E-06	---	6.5E-07	5.1E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.1E-07	---	4.5E-08	3.5E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.2E-07	---	7.6E-08	6.0E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.5E-07	---	3.7E-08	2.9E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	5.4E-09	---	8.5E-10	6.2E-09	Eyes, Immune system	0.0047	---	0.00074	0.0055
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.011	---	---	0.011
			Arsenic	2.1E-07	---	7.2E-09	2.2E-07	Skin	0.017	---	0.00056	0.017
			Chromium Total	3.4E-06	---	---	3.4E-06	None observed	0.0080	---	---	0.0080
			Cobalt	---	---	---	---	Thyroid	0.022	---	---	0.022
			Iron	---	---	---	---	Gastrointestinal	0.024	---	---	0.024
			Manganese	---	---	---	---	Nervous system	0.0054	---	---	0.0054
			Vanadium	---	---	---	---	Hair	0.010	---	---	0.010
			Chemical Total	9.7E-06	---	8.9E-07	1.1E-05		0.10	---	0.0013	0.10
		Exposure Point Total					1.1E-05					0.10
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.5E-12	---	1.5E-12	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.3E-13	---	8.3E-13	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.5E-12	---	1.5E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.8E-13	---	6.8E-13	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	2.8E-14	---	2.8E-14	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.000041	---	0.000041
			Arsenic	---	1.1E-11	---	1.1E-11	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0000060	---	0.0000060
			Chromium Total	---	1.0E-08	---	1.0E-08	Respiratory tract	---	0.0000043	---	0.0000043
			Cobalt	---	3.1E-11	---	3.1E-11	Respiratory tract	---	0.000020	---	0.000020
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00014	---	0.00014
			Vanadium	---	4.0E-10	---	4.0E-10	Larynx	---	0.00024	---	0.00024
			Chemical Total	---	1.1E-08	---	1.1E-08		---	0.00045	---	0.00045
		Exposure Point Total					1.1E-08					0.00045
Soil	Surface Soil Total						1.1E-05					0.10
Soil Total							1.1E-05					0.10

TABLE A-9.1e1-4 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.1E-05

Total Hazard Across All Media	0.10
Total Eyes HI Across All Media	0.0055
Total Immune System HI Across All Media	0.0055
Total Nervous System HI Across All Media	0.017
Total Skin HI Across All Media	0.017
Total Thyroid HI Across All Media	0.022
Total Gastrointestinal HI Across All Media	0.024
Total Hair HI Across All Media	0.010
Total Developmental HI Across All Media	0.0000060
Total Cardiovascular HI Across All Media	0.0000060
Total Lung/Respiratory Tract HI Across All Media	0.00027

TABLE A-9.1e1-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.5E-08	---	2.6E-09	1.8E-08	---	---	---	---	---
			Benzo(a)pyrene	1.2E-07	---	2.1E-08	1.5E-07	---	---	---	---	---
			Benzo(b)fluoranthene	8.6E-09	---	1.5E-09	1.0E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.4E-08	---	2.5E-09	1.7E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	7.0E-09	---	1.2E-09	8.3E-09	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.5E-09	---	2.8E-10	1.8E-09	Eyes, Immune system	0.00029	---	0.000054	0.00035
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00070	---	---	0.00070
			Arsenic	5.9E-08	---	2.4E-09	6.2E-08	Skin	0.0010	---	0.000041	0.0011
			Chromium Total	9.6E-08	---	---	9.6E-08	None observed	0.00050	---	---	0.00050
			Cobalt	---	---	---	---	Thyroid	0.0014	---	---	0.0014
			Iron	---	---	---	---	Gastrointestinal	0.0015	---	---	0.0015
			Manganese	---	---	---	---	Nervous system	0.00033	---	---	0.00033
			Vanadium	---	---	---	---	Hair	0.00064	---	---	0.00064
			Chemical Total	3.3E-07	---	3.2E-08	3.6E-07		0.0064	---	0.000095	0.0065
		Exposure Point Total					3.6E-07					0.0065
		Air at Risk Area E1	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	7.6E-13	---	7.6E-13	---	---	---	---	---
			Benzo(a)pyrene	---	6.3E-12	---	6.3E-12	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.3E-13	---	4.3E-13	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.0E-13	---	8.0E-13	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.6E-13	---	3.6E-13	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.4E-13	---	1.4E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.000047	---	0.000047
			Arsenic	---	5.7E-11	---	5.7E-11	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0000069	---	0.0000069
			Chromium Total	---	5.4E-09	---	5.4E-09	Respiratory tract	---	0.0000050	---	0.0000050
			Cobalt	---	1.6E-10	---	1.6E-10	Respiratory tract	---	0.000023	---	0.000023
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00016	---	0.00016
			Vanadium	---	2.1E-09	---	2.1E-09	Larynx	---	0.00027	---	0.00027
			Chemical Total	---	7.7E-09	---	7.7E-09		---	0.00051	---	0.00051
		Exposure Point Total					7.7E-09					0.00051
Soil	Surface Soil Total						3.7E-07					0.0070
Soil Total							3.7E-07					0.0070

TABLE A-9.1e1-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	3.7E-07
Total Hazard Across All Media	0.0070
Total Eyes HI Across All Media	0.00035
Total Immune System HI Across All Media	0.00035
Total Nervous System HI Across All Media	0.0012
Total Skin HI Across All Media	0.0011
Total Thyroid HI Across All Media	0.0014
Total Gastrointestinal HI Across All Media	0.0015
Total Hair HI Across All Media	0.00064
Total Developmental HI Across All Media	0.0000069
Total Cardiovascular HI Across All Media	0.0000069
Total Lung/Respiratory Tract HI Across All Media	0.00031

TABLE A-9.2e1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.0078	---	0.00027	0.0081
			Hexachlorobenzene	---	---	---	---	Liver	0.00032	---	0.000037	0.00036
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	**Eyes, Immune system**	**0.0031**	---	**0.00050**	**0.0036**
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	0.0000025	---	---	0.0000025
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0058	---	---	0.0058
			Arsenic	---	---	---	---	Skin	0.0076	---	0.00026	0.0079
			Chromium Total	---	---	---	---	None observed	0.0041	---	---	0.0041
			Cobalt	---	---	---	---	Thyroid	0.013	---	---	0.013
			Iron	---	---	---	---	Gastrointestinal	0.013	---	---	0.013
			Manganese	---	---	---	---	Nervous system	0.0026	---	---	0.0026
			Mercury	---	---	---	---	Nervous system	0.0024	---	---	0.0024
			Vanadium	---	---	---	---	Hair	0.031	---	---	0.031
			Chemical Total	---	---	---	---		0.090	---	0.0011	0.092
		Exposure Point Total					---					0.092
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000020	---	0.00000020
			Hexachlorobenzene	---	---	---	---	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---

TABLE A-9.2e1-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	---	0.0000030	---	0.0000030
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00015	---	0.00015
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	---	---	---	Respiratory tract	---	0.00064	---	0.00064
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0036	---	0.0036
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Vanadium	---	---	---	---	Larynx	---	0.040	---	0.040
			Chemical Total	---	---	---	---		---	0.046	---	0.046
		Exposure Point Total					---					0.046
	Aggregate Soil Total						---					0.14
Soil Total							---					0.14

Total Risk Across All Media	---
Total Hazard Across All Media	0.14
Total Developmental HI Across All Media	0.0082
Total Liver HI Across All Media	0.00036
Total Eyes HI Across All Media	0.0036
Total Immune System HI Across All Media	0.0036
Total Nervous System HI Across All Media	0.016
Total Skin HI Across All Media	0.0080
Total Thyroid HI Across All Media	0.013
Total Gastrointestinal HI Across All Media	0.013
Total Hair HI Across All Media	0.031
Total Reproductive System HI Across All Media	0.00000020
Total Endocrine System HI Across All Media	0.00000020
Total Blood HI Across All Media	0.00000020
Total Cardiovascular HI Across All Media	0.00015
Total Lung/Respiratory Tract HI Across All Media	0.041

TABLE A-9.2e1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.073	---	0.0024	0.075
			Hexachlorobenzene	---	---	---	---	Liver	0.0030	---	0.00034	0.0033
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.029	---	0.0046	0.034
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	0.000023	---	---	0.000023
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.054	---	---	0.054
			Arsenic	---	---	---	---	Skin	0.071	---	0.0024	0.073
			Chromium Total	---	---	---	---	None observed	0.038	---	---	0.038
			Cobalt	---	---	---	---	Thyroid	0.12	---	---	0.12
			Iron	---	---	---	---	Gastrointestinal	0.12	---	---	0.12
			Manganese	---	---	---	---	Nervous system	0.024	---	---	0.024
			Mercury	---	---	---	---	Nervous system	0.022	---	---	0.022
			Vanadium	---	---	---	---	Hair	0.29	---	---	0.29
			Chemical Total	---	---	---	---		0.84	---	0.0098	0.85
		Exposure Point Total					---					0.85
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	---	---	---	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000020	---	0.00000020
			Hexachlorobenzene	---	---	---	---	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---

TABLE A-9.2e1-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Vinyl chloride	---	---	---	---	Liver	---	0.0000030	---	0.0000030
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00015	---	0.00015
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00012	---	0.00012
			Cobalt	---	---	---	---	Respiratory tract	---	0.00064	---	0.00064
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0036	---	0.0036
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Vanadium	---	---	---	---	Larynx	---	0.040	---	0.040
			Chemical Total	---	---	---	---		---	0.046	---	0.046
		Exposure Point Total					---					0.046
	Aggregate Soil Total						---					0.90
Soil Total							---					0.90

Total Risk Across All Media	---
Total Hazard Across All Media	0.90
Total Developmental HI Across All Media	0.075
Total Liver HI Across All Media	0.0034
Total Eyes HI Across All Media	0.034
Total Immune System HI Across All Media	0.034
Total Nervous System HI Across All Media	0.10
Total Skin HI Across All Media	0.074
Total Thyroid HI Across All Media	0.12
Total Gastrointestinal HI Across All Media	0.12
Total Hair HI Across All Media	0.29
Total Reproductive System HI Across All Media	0.00000020
Total Endocrine System HI Across All Media	0.00000020
Total Blood HI Across All Media	0.00000020
Total Cardiovascular HI Across All Media	0.00015
Total Lung/Respiratory Tract HI Across All Media	0.041

TABLE A-9.2e1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	1.0E-07	---	---	1.0E-07	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	3.7E-07	---	1.3E-08	3.8E-07	---	---	---	---	---
			Hexachlorobenzene	1.5E-07	---	1.7E-08	1.7E-07	---	---	---	---	---
			N-Nitrosodi-n-propylamine	6.6E-07	---	7.4E-08	7.3E-07	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	8.1E-06	---	1.2E-06	9.3E-06	---	---	---	---	---
			Benzo(a)pyrene	7.1E-05	---	1.0E-05	8.2E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.1E-05	---	1.5E-06	1.2E-05	---	---	---	---	---
			Benzo(k)fluoranthene	4.1E-07	---	6.0E-08	4.7E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.1E-06	---	4.6E-07	3.6E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-06	---	2.3E-07	1.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	4.6E-08	---	7.2E-09	5.3E-08	---	---	---	---	---
			Aroclor-1260	6.7E-08	---	1.1E-08	7.8E-08	---	---	---	---	---
			Vinyl chloride	5.5E-08	---	---	5.5E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.3E-06	---	4.2E-08	1.3E-06	---	---	---	---	---
			Chromium Total	1.8E-05	---	---	1.8E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.2E-04	---	1.4E-05	1.3E-04		---	---	---	---
		Exposure Point Total					1.3E-04					---
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	3.4E-07	---	3.4E-07	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Hexachlorobenzene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	6.7E-11	---	6.7E-11	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	2.4E-10	---	2.4E-10	---	---	---	---	---

TABLE A-9.2e1-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	2.1E-09	---	2.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	4.6E-12	---	4.6E-12	---	---	---	---	---
			Aroclor-1260	---	6.8E-12	---	6.8E-12	---	---	---	---	---
			Vinyl chloride	---	1.5E-09	---	1.5E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Chromium Total	---	6.1E-07	---	6.1E-07	---	---	---	---	---
			Cobalt	---	4.4E-09	---	4.4E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.0E-07	---	3.0E-07	---	---	---	---	---
			Chemical Total	---	1.3E-06	---	1.3E-06		---	---	---	---
		Exposure Point Total					1.3E-06					---
	Aggregate Soil Total						1.3E-04					---
Soil Total							1.3E-04					---

Total Risk Across All Media: 1.3E-04

Total Hazard Across All Media: ---

TABLE A-9.2e1-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	6.0E-10	---	---	6.0E-10	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	2.2E-09	---	2.1E-10	2.4E-09	Developmental	0.0012	---	0.00011	0.0013
			Hexachlorobenzene	8.7E-10	---	2.9E-10	1.2E-09	Liver	0.000048	---	0.000016	0.000063
			N-Nitrosodi-n-propylamine	3.8E-09	---	1.3E-09	5.1E-09	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	5.8E-09	---	2.5E-09	8.3E-09	---	---	---	---	---
			Benzo(a)pyrene	5.1E-08	---	2.2E-08	7.3E-08	---	---	---	---	---
			Benzo(b)fluoranthene	7.6E-09	---	3.2E-09	1.1E-08	---	---	---	---	---
			Benzo(k)fluoranthene	3.0E-10	---	1.3E-10	4.2E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.2E-09	---	9.6E-10	3.2E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-09	---	4.9E-10	1.6E-09	---	---	---	---	---
			PCBs									
			Aroclor-1254	**2.7E-10**	---	**1.2E-10**	**3.9E-10**	**Eyes, Immune system**	**0.00047**	---	**0.00021**	**0.00068**
			Aroclor-1260	3.9E-10	---	1.8E-10	5.7E-10	---	---	---	---	---
			Vinyl chloride	1.2E-11	---	---	1.2E-11	Liver	0.00000037	---	---	0.00000037
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00085	---	---	0.00085
			Arsenic	7.3E-09	---	7.2E-10	8.0E-09	Skin	0.0011	---	0.00011	0.0012
			Chromium Total	1.3E-08	---	---	1.3E-08	None observed	0.00061	---	---	0.00061
			Cobalt	---	---	---	---	Thyroid	0.0019	---	---	0.0019
			Iron	---	---	---	---	Gastrointestinal	0.0020	---	---	0.0020
			Manganese	---	---	---	---	Nervous system	0.00038	---	---	0.00038
			Mercury	---	---	---	---	Nervous system	0.00035	---	---	0.00035
			Vanadium	---	---	---	---	Hair	0.0046	---	---	0.0046
			Chemical Total	9.7E-08	---	3.2E-08	1.3E-07		0.013	---	0.00046	0.014
		Exposure Point Total					1.3E-07					0.014
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	5.1E-09	---	5.1E-09	---	---	---	---	---
			4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.1E-10	---	1.1E-10	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.0000049	---	0.0000049
			Hexachlorobenzene	---	4.2E-11	---	4.2E-11	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---

TABLE A-9.2e1-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E1	Benzo(a)pyrene	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.5E-11	---	7.5E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.2E-11	---	6.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.9E-11	---	2.9E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.3E-11	---	1.3E-11	---	---	---	---	---
			Aroclor-1260	---	1.9E-11	---	1.9E-11	---	---	---	---	---
			Vinyl chloride	---	4.7E-13	---	4.7E-13	Liver	---	0.000000075	---	0.000000075
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.029	---	0.029
			Arsenic	---	3.5E-09	---	3.5E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0038	---	0.0038
			Chromium Total	---	3.7E-07	---	3.7E-07	Respiratory tract	---	0.0031	---	0.0031
			Cobalt	---	1.2E-08	---	1.2E-08	Respiratory tract	---	0.016	---	0.016
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.089	---	0.089
			Mercury	---	---	---	---	Nervous system	---	0.000032	---	0.000032
			Vanadium	---	8.3E-07	---	8.3E-07	Larynx	---	0.069	---	0.069
			Chemical Total	---	1.2E-06	---	1.2E-06		---	0.21	---	0.21
		Exposure Point Total					1.2E-06					0.21
	Aggregate Soil Total						1.4E-06					0.22
Soil Total							1.4E-06					0.22

Total Risk Across All Media	1.4E-06
Total Hazard Across All Media	0.22
Total Developmental HI Across All Media	0.0051
Total Liver HI Across All Media	0.000069
Total Eyes HI Across All Media	0.00068
Total Immune System HI Across All Media	0.00068
Total Nervous System HI Across All Media	0.12
Total Skin HI Across All Media	0.0050
Total Thyroid HI Across All Media	0.0019
Total Gastrointestinal HI Across All Media	0.0020
Total Hair HI Across All Media	0.0046
Total Reproductive System HI Across All Media	0.0000049
Total Endocrine System HI Across All Media	0.0000049
Total Blood HI Across All Media	0.0000049
Total Cardiovascular HI Across All Media	0.0038
Total Lung/Respiratory Tract HI Across All Media	0.092

TABLE A-9.1e2-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.5E-07	---	2.1E-07	4.6E-07	---	---	---	---	---
			Benzo(a)pyrene	2.1E-06	---	1.8E-06	3.9E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.8E-07	---	3.3E-07	7.1E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.5E-07	---	3.9E-07	8.4E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.0E-07	---	1.7E-07	3.7E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0078	---	---	0.0078
			Antimony	---	---	---	---	Blood	0.0021	---	---	0.0021
			Arsenic	1.5E-06	---	2.9E-07	1.8E-06	Skin	0.0092	---	0.0018	0.011
			Chromium Total	2.3E-06	---	---	2.3E-06	None observed	0.0043	---	---	0.0043
			Cobalt	---	---	---	---	Thyroid	0.017	---	---	0.017
			Iron	---	---	---	---	Gastrointestinal	0.018	---	---	0.018
			Manganese	---	---	---	---	Nervous system	0.0028	---	---	0.0028
			Vanadium	---	---	---	---	Hair	0.0058	---	---	0.0058
			Chemical Total	7.2E-06	---	3.2E-06	1.0E-05		0.067	---	0.0018	0.069
		Exposure Point Total					1.0E-05					0.069
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	6.3E-12	---	6.3E-12	---	---	---	---	---
			Benzo(a)pyrene	---	5.3E-11	---	5.3E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.6E-12	---	9.6E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.1E-12	---	5.1E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00026	---	0.00026
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	7.1E-10	---	7.1E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000031	---	0.000031
			Chromium Total	---	6.5E-08	---	6.5E-08	Respiratory tract	---	0.000022	---	0.000022
			Cobalt	---	2.8E-09	---	2.8E-09	Respiratory tract	---	0.00014	---	0.00014
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00065	---	0.00065
			Vanadium	---	2.6E-08	---	2.6E-08	Larynx	---	0.0012	---	0.0012
			Chemical Total	---	9.4E-08	---	9.4E-08		---	0.0024	---	0.0024
		Exposure Point Total					9.4E-08					0.0024
	Surface Soil Total						1.0E-05					0.071
Soil Total							1.0E-05					0.071

TABLE A-9.1e2-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.0E-05
Total Hazard Across All Media	0.071
Total Nervous System HI Across All Media	0.011
Total Blood HI Across All Media	0.0021
Total Skin HI Across All Media	0.011
Total Thyroid HI Across All Media	0.017
Total Gastrointestinal HI Across All Media	0.018
Total Hair HI Across All Media	0.0058
Total Developmental HI Across All Media	0.000031
Total Cardiovascular HI Across All Media	0.000031
Total Lung/Respiratory Tract HI Across All Media	0.0014

TABLE A-9.1e2-7 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.0E-06	---	7.4E-07	2.8E-06	---	---	---	---	---
			Benzo(a)pyrene	1.7E-05	---	6.3E-06	2.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	3.1E-06	---	1.1E-06	4.3E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.7E-06	---	1.3E-06	5.1E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.7E-06	---	6.0E-07	2.3E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.073	---	---	0.073
			Antimony	---	---	---	---	Blood	0.020	---	---	0.020
			Arsenic	2.8E-06	---	2.3E-07	3.0E-06	Skin	0.086	---	0.0072	0.093
			Chromium Total	1.9E-05	---	---	1.9E-05	None observed	0.040	---	---	0.040
			Cobalt	---	---	---	---	Thyroid	0.16	---	---	0.16
			Iron	---	---	---	---	Gastrointestinal	0.17	---	---	0.17
			Manganese	---	---	---	---	Nervous system	0.026	---	---	0.026
			Vanadium	---	---	---	---	Hair	0.054	---	---	0.054
			Chemical Total	4.9E-05	---	1.0E-05	6.0E-05		0.62	---	0.0072	0.63
		Exposure Point Total					6.0E-05					0.63
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	5.5E-12	---	5.5E-12	---	---	---	---	---
			Benzo(a)pyrene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.4E-12	---	8.4E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.5E-12	---	4.5E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00026	---	0.00026
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.4E-10	---	1.4E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000031	---	0.000031
			Chromium Total	---	5.6E-08	---	5.6E-08	Respiratory tract	---	0.000022	---	0.000022
			Cobalt	---	5.5E-10	---	5.5E-10	Respiratory tract	---	0.00014	---	0.00014
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00065	---	0.00065
			Vanadium	---	5.2E-09	---	5.2E-09	Larynx	---	0.0012	---	0.0012
			Chemical Total	---	6.2E-08	---	6.2E-08		---	0.0024	---	0.0024
		Exposure Point Total					6.2E-08					0.0024
	Surface Soil Total						6.0E-05					0.63
Soil Total							6.0E-05					0.63

TABLE A-9.1e2-7 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	6.0E-05
Total Hazard Across All Media	0.63
Total Nervous System HI Across All Media	0.099
Total Blood HI Across All Media	0.020
Total Skin HI Across All Media	0.093
Total Thyroid HI Across All Media	0.16
Total Gastrointestinal HI Across All Media	0.17
Total Hair HI Across All Media	0.054
Total Developmental HI Across All Media	0.000031
Total Cardiovascular HI Across All Media	0.000031
Total Lung/Respiratory Tract HI Across All Media	0.0014

TABLE A-9.2e2-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	2.6E-07	---	5.1E-08	3.1E-07	Developmental	0.0055	---	0.0011	0.0066
			PAHs									
			Benzo(a)anthracene	4.5E-07	---	3.9E-07	8.4E-07	---	---	---	---	---
			Benzo(a)pyrene	4.8E-06	---	4.2E-06	9.0E-06	---	---	---	---	---
			Benzo(b)fluoranthene	6.4E-07	---	5.5E-07	1.2E-06	---	---	---	---	---
			Benzo(k)fluoranthene	2.5E-08	---	2.1E-08	4.6E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.3E-07	---	3.7E-07	8.0E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.4E-07	---	2.1E-07	4.5E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0076	---	---	0.0076
			Antimony	---	---	---	---	Blood	0.0021	---	---	0.0021
			Arsenic	2.2E-06	---	4.4E-07	2.7E-06	Skin	0.014	---	0.0027	0.017
			Cadmium	---	---	---	---	Kidney	0.0094	---	0.0025	0.012
			Chromium Total	2.3E-06	---	---	2.3E-06	None observed	0.0043	---	---	0.0043
			Cobalt	---	---	---	---	Thyroid	0.016	---	---	0.016
			Iron	---	---	---	---	Gastrointestinal	0.017	---	---	0.017
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0027	---	---	0.0027
			Vanadium	---	---	---	---	Hair	0.0054	---	---	0.0054
			Chemical Total	1.1E-05	---	6.2E-06	1.8E-05		0.084	---	0.0063	0.091
		Exposure Point Total					1.8E-05					0.091
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.3E-11	---	1.3E-11	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000000023	---	0.000000023
			PAHs									
			Benzo(a)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.6E-11	---	1.6E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	6.3E-12	---	6.3E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.1E-12	---	6.1E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00025	---	0.00025
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.1E-09	---	1.1E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000046	---	0.000046
			Cadmium	---	1.0E-09	---	1.0E-09	Kidney	---	0.00016	---	0.00016

TABLE A-9.2e2-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E2	Chromium Total	---	6.4E-08	---	6.4E-08	Respiratory tract	---	0.000021	---	0.000021
			Cobalt	---	2.7E-09	---	2.7E-09	Respiratory tract	---	0.00014	---	0.00014
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00063	---	0.00063
			Vanadium	---	2.5E-08	---	2.5E-08	Larynx	---	0.0012	---	0.0012
			Chemical Total	---	9.4E-08	---	9.4E-08		---	0.0024	---	0.0024
		Exposure Point Total					9.4E-08					0.0024
	Aggregate Soil Total						1.8E-05					0.093
Soil Total							1.8E-05					0.093

Total Risk Across All Media	1.8E-05
Total Hazard Across All Media	0.093
Total Developmental HI Across All Media	0.0067
Total Nervous System HI Across All Media	0.011
Total Blood HI Across All Media	0.0021
Total Skin HI Across All Media	0.017
Total Kidney HI Across All Media	0.012
Total Thyroid HI Across All Media	0.016
Total Gastrointestinal HI Across All Media	0.017
Total Hair HI Across All Media	0.0054
Total Liver HI Across All Media	0.000000023
Total Reproductive System HI Across All Media	0.000000023
Total Endocrine System HI Across All Media	0.000000023
Total Lung/Respiratory Tract HI Across All Media	0.0014
Total Cardiovascular HI Across All Media	0.000046

TABLE A-9.2e2-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.8E-08	---	1.6E-09	1.9E-08	Developmental	0.0095	---	0.00085	0.010
			PAHs									
			Benzo(a)anthracene	3.1E-08	---	1.2E-08	4.3E-08	---	---	---	---	---
			Benzo(a)pyrene	3.3E-07	---	1.3E-07	4.6E-07	---	---	---	---	---
			Benzo(b)fluoranthene	4.4E-08	---	1.7E-08	6.1E-08	---	---	---	---	---
			Benzo(k)fluoranthene	1.7E-09	---	6.6E-10	2.4E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.0E-08	---	1.2E-08	4.1E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-08	---	6.4E-09	2.3E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.013	---	---	0.013
			Antimony	---	---	---	---	Blood	0.0036	---	---	0.0036
			Arsenic	1.5E-07	---	1.4E-08	1.7E-07	Skin	0.024	---	0.0021	0.026
			Cadmium	---	---	---	---	Kidney	0.016	---	0.0019	0.018
			Chromium Total	1.6E-07	---	---	1.6E-07	None observed	0.0073	---	---	0.0073
			Cobalt	---	---	---	---	Thyroid	0.028	---	---	0.028
			Iron	---	---	---	---	Gastrointestinal	0.030	---	---	0.030
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0046	---	---	0.0046
			Vanadium	---	---	---	---	Hair	0.0093	---	---	0.0093
			Chemical Total	7.8E-07	---	1.9E-07	9.8E-07		0.14	---	0.0049	0.15
		Exposure Point Total					9.8E-07					0.15
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	2.6E-10	---	2.6E-10	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000012	---	0.000012
			PAHs									
			Benzo(a)anthracene	---	2.4E-10	---	2.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.6E-09	---	2.6E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.4E-10	---	3.4E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.13	---	0.13
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	2.2E-08	---	2.2E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.024	---	0.024
			Cadmium	---	2.1E-08	---	2.1E-08	Kidney	---	0.082	---	0.082

TABLE A-9.2e2-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E2	Chromium Total	---	1.3E-06	---	1.3E-06	Respiratory tract	---	0.011	---	0.011
			Cobalt	---	5.5E-08	---	5.5E-08	Respiratory tract	---	0.072	---	0.072
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.33	---	0.33
			Vanadium	---	5.1E-07	---	5.1E-07	Larynx	---	0.043	---	0.043
			Chemical Total	---	2.0E-06	---	2.0E-06		---	0.69	---	0.69
		Exposure Point Total					2.0E-06					0.69
	Aggregate Soil Total						2.9E-06					0.84
Soil Total							2.9E-06					0.84

Total Risk Across All Media	2.9E-06
Total Hazard Across All Media	0.84
Total Developmental HI Across All Media	0.035
Total Nervous System HI Across All Media	0.50
Total Blood HI Across All Media	0.0036
Total Skin HI Across All Media	0.050
Total Kidney HI Across All Media	0.10
Total Thyroid HI Across All Media	0.028
Total Gastrointestinal HI Across All Media	0.030
Total Hair HI Across All Media	0.0093
Total Liver HI Across All Media	0.000012
Total Reproductive System HI Across All Media	0.000012
Total Endocrine System HI Across All Media	0.000012
Total Lung/Respiratory Tract HI Across All Media	0.15
Total Cardiovascular HI Across All Media	0.024

TABLE A-9.1e2-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	3.9E-08	---	6.7E-09	4.6E-08	---	---	---	---	---
			Benzo(a)pyrene	3.3E-07	---	5.7E-08	3.9E-07	---	---	---	---	---
			Benzo(b)fluoranthene	6.0E-08	---	1.0E-08	7.0E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	7.1E-08	---	1.2E-08	8.3E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.2E-08	---	5.5E-09	3.7E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0034	---	---	0.0034
			Antimony	---	---	---	---	Blood	0.00092	---	---	0.00092
			Arsenic	2.3E-07	---	9.3E-09	2.4E-07	Skin	0.0040	---	0.00016	0.0042
			Chromium Total	3.6E-07	---	---	3.6E-07	None observed	0.0019	---	---	0.0019
			Cobalt	---	---	---	---	Thyroid	0.0075	---	---	0.0075
			Iron	---	---	---	---	Gastrointestinal	0.0078	---	---	0.0078
			Manganese	---	---	---	---	Nervous system	0.0012	---	---	0.0012
			Vanadium	---	---	---	---	Hair	0.0025	---	---	0.0025
			Chemical Total	1.1E-06	---	1.0E-07	1.2E-06		0.029	---	0.00016	0.029
		Exposure Point Total					1.2E-06					0.029
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	2.0E-12	---	2.0E-12	---	---	---	---	---
			Benzo(a)pyrene	---	1.7E-11	---	1.7E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.0E-12	---	3.0E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.9E-12	---	3.9E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.6E-12	---	1.6E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00023	---	0.00023
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	2.3E-10	---	2.3E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000027	---	0.000027
			Chromium Total	---	2.0E-08	---	2.0E-08	Respiratory tract	---	0.000019	---	0.000019
			Cobalt	---	8.7E-10	---	8.7E-10	Respiratory tract	---	0.00013	---	0.00013
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00057	---	0.00057
			Vanadium	---	8.3E-09	---	8.3E-09	Larynx	---	0.0011	---	0.0011
			Chemical Total	---	3.0E-08	---	3.0E-08		---	0.0021	---	0.0021
		Exposure Point Total					3.0E-08					0.0021
	Surface Soil Total						1.3E-06					0.032
Soil Total							1.3E-06					0.032

TABLE A-9.1e2-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.3E-06
Total Hazard Across All Media	0.032
Total Nervous System HI Across All Media	0.0054
Total Blood HI Across All Media	0.00092
Total Skin HI Across All Media	0.0042
Total Thyroid HI Across All Media	0.0075
Total Gastrointestinal HI Across All Media	0.0078
Total Hair HI Across All Media	0.0025
Total Developmental HI Across All Media	0.000027
Total Cardiovascular HI Across All Media	0.000027
Total Lung/Respiratory Tract HI Across All Media	0.0013

TABLE A-9.1e2-7 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.7E-07	---	2.5E-08	2.0E-07	---	---	---	---	---
			Benzo(a)pyrene	1.5E-06	---	2.1E-07	1.7E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-07	---	3.9E-08	3.0E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.2E-07	---	4.6E-08	3.6E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.4E-07	---	2.1E-08	1.6E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.010	---	---	0.010
			Antimony	---	---	---	---	Blood	0.0028	---	---	0.0028
			Arsenic	1.6E-07	---	5.4E-09	1.6E-07	Skin	0.012	---	0.00042	0.013
			Chromium Total	1.6E-06	---	---	1.6E-06	None observed	0.0057	---	---	0.0057
			Cobalt	---	---	---	---	Thyroid	0.023	---	---	0.023
			Iron	---	---	---	---	Gastrointestinal	0.024	---	---	0.024
			Manganese	---	---	---	---	Nervous system	0.0037	---	---	0.0037
			Vanadium	---	---	---	---	Hair	0.0078	---	---	0.0078
			Chemical Total	4.1E-06	---	3.5E-07	4.5E-06		0.090	---	0.00042	0.090
		Exposure Point Total					4.5E-06					0.090
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.7E-13	---	4.7E-13	---	---	---	---	---
			Benzo(a)pyrene	---	3.9E-12	---	3.9E-12	---	---	---	---	---
			Benzo(b)fluoranthene	---	7.1E-13	---	7.1E-13	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	9.3E-13	---	9.3E-13	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.8E-13	---	3.8E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.000038	---	0.000038
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	8.2E-12	---	8.2E-12	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0000045	---	0.0000045
			Chromium Total	---	4.8E-09	---	4.8E-09	Respiratory tract	---	0.0000031	---	0.0000031
			Cobalt	---	3.2E-11	---	3.2E-11	Respiratory tract	---	0.000021	---	0.000021
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.000093	---	0.000093
			Vanadium	---	3.0E-10	---	3.0E-10	Larynx	---	0.00018	---	0.00018
			Chemical Total	---	5.1E-09	---	5.1E-09		---	0.00034	---	0.00034
		Exposure Point Total					5.1E-09					0.00034
	Surface Soil Total						4.5E-06					0.091
Soil Total							4.5E-06					0.091

TABLE A-9.1e2-7 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	4.5E-06
Total Hazard Across All Media	0.091
Total Nervous System HI Across All Media	0.014
Total Blood HI Across All Media	0.0028
Total Skin HI Across All Media	0.013
Total Thyroid HI Across All Media	0.023
Total Gastrointestinal HI Across All Media	0.024
Total Hair HI Across All Media	0.0078
Total Developmental HI Across All Media	0.0000045
Total Cardiovascular HI Across All Media	0.0000045
Total Lung/Respiratory Tract HI Across All Media	0.00021

TABLE A-9.2e2-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	4.0E-08	---	1.6E-09	4.2E-08	Developmental	0.0024	---	0.000096	0.0025
			PAHs									
			Benzo(a)anthracene	7.1E-08	---	1.2E-08	8.3E-08	---	---	---	---	---
			Benzo(a)pyrene	7.6E-07	---	1.3E-07	9.0E-07	---	---	---	---	---
			Benzo(b)fluoranthene	1.0E-07	---	1.7E-08	1.2E-07	---	---	---	---	---
			Benzo(k)fluoranthene	3.9E-09	---	6.7E-10	4.6E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	6.8E-08	---	1.2E-08	8.0E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.8E-08	---	6.5E-09	4.4E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0033	---	---	0.0033
			Antimony	---	---	---	---	Blood	0.00092	---	---	0.00092
			Arsenic	3.5E-07	---	1.4E-08	3.6E-07	Skin	0.0061	---	0.00024	0.0063
			Cadmium	---	---	---	---	Kidney	0.0041	---	0.00022	0.0043
			Chromium Total	3.6E-07	---	---	3.6E-07	None observed	0.0019	---	---	0.0019
			Cobalt	---	---	---	---	Thyroid	0.0072	---	---	0.0072
			Iron	---	---	---	---	Gastrointestinal	0.0076	---	---	0.0076
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0012	---	---	0.0012
			Vanadium	---	---	---	---	Hair	0.0024	---	---	0.0024
			Chemical Total	1.8E-06	---	2.0E-07	2.0E-06		0.037	---	0.00055	0.038
		Exposure Point Total					2.0E-06					0.038
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	4.0E-12	---	4.0E-12	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000000020	---	0.000000020
			PAHs									
			Benzo(a)anthracene	---	3.6E-12	---	3.6E-12	---	---	---	---	---
			Benzo(a)pyrene	---	3.9E-11	---	3.9E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.1E-12	---	5.1E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.0E-12	---	2.0E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.8E-12	---	3.8E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.9E-12	---	1.9E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00022	---	0.00022
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	3.4E-10	---	3.4E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000041	---	0.000041
			Cadmium	---	3.2E-10	---	3.2E-10	Kidney	---	0.00014	---	0.00014

TABLE A-9.2e2-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E2	Chromium Total	---	2.0E-08	---	2.0E-08	Respiratory tract	---	0.000019	---	0.000019
			Cobalt	---	8.4E-10	---	8.4E-10	Respiratory tract	---	0.00012	---	0.00012
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00055	---	0.00055
			Vanadium	---	7.7E-09	---	7.7E-09	Larynx	---	0.0010	---	0.0010
			Chemical Total	---	3.0E-08	---	3.0E-08		---	0.0021	---	0.0021
		Exposure Point Total					3.0E-08					0.0021
	Aggregate Soil Total						2.0E-06					0.040
Soil Total							2.0E-06					0.040

Total Risk Across All Media	2.0E-06
Total Hazard Across All Media	0.040
Total Developmental HI Across All Media	0.0026
Total Nervous System HI Across All Media	0.0053
Total Blood HI Across All Media	0.00092
Total Skin HI Across All Media	0.0063
Total Kidney HI Across All Media	0.0045
Total Thyroid HI Across All Media	0.0072
Total Gastrointestinal HI Across All Media	0.0076
Total Hair HI Across All Media	0.0024
Total Liver HI Across All Media	0.000000020
Total Reproductive System HI Across All Media	0.000000020
Total Endocrine System HI Across All Media	0.000000020
Total Lung/Respiratory Tract HI Across All Media	0.0012
Total Cardiovascular HI Across All Media	0.000041

TABLE A-9.2e2-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.1E-09	---	1.1E-10	1.2E-09	Developmental	0.00057	---	0.000057	0.00063
			PAHs									
			Benzo(a)anthracene	1.9E-09	---	8.0E-10	2.7E-09	---	---	---	---	---
			Benzo(a)pyrene	2.0E-08	---	8.7E-09	2.9E-08	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-09	---	1.1E-09	3.8E-09	---	---	---	---	---
			Benzo(k)fluoranthene	1.0E-10	---	4.4E-11	1.5E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.8E-09	---	7.7E-10	2.6E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.0E-09	---	4.3E-10	1.4E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00079	---	---	0.00079
			Antimony	---	---	---	---	Blood	0.00022	---	---	0.00022
			Arsenic	9.3E-09	---	9.2E-10	1.0E-08	Skin	0.0014	---	0.00014	0.0016
			Cadmium	---	---	---	---	Kidney	0.00097	---	0.00013	0.0011
			Chromium Total	9.5E-09	---	---	9.5E-09	None observed	0.00044	---	---	0.00044
			Cobalt	---	---	---	---	Thyroid	0.0017	---	---	0.0017
			Iron	---	---	---	---	Gastrointestinal	0.0018	---	---	0.0018
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00028	---	---	0.00028
			Vanadium	---	---	---	---	Hair	0.00056	---	---	0.00056
			Chemical Total	4.7E-08	---	1.3E-08	6.0E-08		0.0088	---	0.00033	0.0091
		Exposure Point Total					6.0E-08					0.0091
		Air at Risk Area E2	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	5.2E-11	---	5.2E-11	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.0000024	---	0.0000024
			PAHs									
			Benzo(a)anthracene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Benzo(a)pyrene	---	5.1E-10	---	5.1E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.8E-11	---	6.8E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.6E-11	---	2.6E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.0E-11	---	5.0E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.5E-11	---	2.5E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.027	---	0.027
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	4.5E-09	---	4.5E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0048	---	0.0048
			Cadmium	---	4.2E-09	---	4.2E-09	Kidney	---	0.016	---	0.016

TABLE A-9.2e2-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E2	Chromium Total	---	2.7E-07	---	2.7E-07	Respiratory tract	---	0.0022	---	0.0022
			Cobalt	---	1.1E-08	---	1.1E-08	Respiratory tract	---	0.014	---	0.014
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.065	---	0.065
			Vanadium	---	1.0E-07	---	1.0E-07	Larynx	---	0.0085	---	0.0085
			Chemical Total	---	3.9E-07	---	3.9E-07		---	0.14	---	0.14
		Exposure Point Total					3.9E-07					0.14
	Aggregate Soil Total						4.5E-07					0.15
Soil Total							4.5E-07					0.15

Total Risk Across All Media	4.5E-07
Total Hazard Across All Media	0.15
Total Developmental HI Across All Media	0.0055
Total Nervous System HI Across All Media	0.098
Total Blood HI Across All Media	0.00022
Total Skin HI Across All Media	0.0064
Total Kidney HI Across All Media	0.017
Total Thyroid HI Across All Media	0.0017
Total Gastrointestinal HI Across All Media	0.0018
Total Hair HI Across All Media	0.00056
Total Liver HI Across All Media	0.0000024
Total Reproductive System HI Across All Media	0.0000024
Total Endocrine System HI Across All Media	0.0000024
Total Lung/Respiratory Tract HI Across All Media	0.030
Total Cardiovascular HI Across All Media	0.0048

TABLE A-9.1e3-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.014	---	---	0.014
			Arsenic	---	---	---	---	Skin	0.020	---	0.0024	0.023
			Chromium Total	---	---	---	---	None observed	0.0093	---	---	0.0093
			Cobalt	---	---	---	---	Thyroid	0.032	---	---	0.032
			Iron	---	---	---	---	Gastrointestinal	0.030	---	---	0.030
			Manganese	---	---	---	---	Nervous system	0.0062	---	---	0.0062
			Mercury	---	---	---	---	Nervous system	0.012	---	---	0.012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.011	---	---	0.011
			Chemical Total	---	---	---	---		0.14	---	0.0024	0.14
		Exposure Point Total					---					0.14
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00020	---	0.00020
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00014	---	0.00014
			Cobalt	---	---	---	---	Respiratory tract	---	0.00080	---	0.00080
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000033	---	0.0000033
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0069	---	0.0069

TABLE A-9.1e3-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	---	---	---		---	0.014	---	0.014
		Exposure Point Total					---					0.014
	Surface Soil Total						---					0.15
Soil Total							---					0.15

Total Risk Across All Media	---
Total Hazard Across All Media	0.15
Total Nervous System HI Across All Media	0.039
Total Skin HI Across All Media	0.023
Total Thyroid HI Across All Media	0.032
Total Gastrointestinal HI Across All Media	0.030
Total Hair HI Across All Media	0.011
Total Developmental HI Across All Media	0.00020
Total Cardiovascular HI Across All Media	0.00020
Total Lung/Respiratory Tract HI Across All Media	0.0081

TABLE A-9.1e3-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.13	---	---	0.13
			Arsenic	---	---	---	---	Skin	0.19	---	0.016	0.20
			Chromium Total	---	---	---	---	None observed	0.087	---	---	0.087
			Cobalt	---	---	---	---	Thyroid	0.30	---	---	0.30
			Iron	---	---	---	---	Gastrointestinal	0.28	---	---	0.28
			Manganese	---	---	---	---	Nervous system	0.058	---	---	0.058
			Mercury	---	---	---	---	Nervous system	0.12	---	---	0.12
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.10	---	---	0.10
			Chemical Total	---	---	---	---		1.3	---	0.016	1.3
		Exposure Point Total					---					1.3
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00020	---	0.00020
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00014	---	0.00014
			Cobalt	---	---	---	---	Respiratory tract	---	0.00080	---	0.00080
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000033	---	0.0000033
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.00694	---	0.0069

TABLE A-9.1e3-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	---	---	---		---	0.014	---	0.014
		Exposure Point Total					---					0.014
	Surface Soil Total						---					1.3
Soil Total							---					1.3

Total Risk Across All Media	---
Total Hazard Across All Media	1.3
Total Nervous System HI Across All Media	0.31
Total Skin HI Across All Media	0.20
Total Thyroid HI Across All Media	0.30
Total Gastrointestinal HI Across All Media	0.28
Total Hair HI Across All Media	0.10
Total Developmental HI Across All Media	0.00020
Total Cardiovascular HI Across All Media	0.00020
Total Lung/Respiratory Tract HI Across All Media	0.0081

TABLE A-9.1e3-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs					---				
			Benzo(a)anthracene	9.0E-06	---	3.5E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	6.8E-05	---	2.6E-05	9.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.0E-06	---	3.1E-06	1.1E-05	---	---	---	---	---
			Benzo(k)fluoranthene	5.4E-07	---	2.1E-07	7.5E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-05	---	4.8E-06	1.7E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.7E-06	---	1.8E-06	6.6E-06	---	---	---	---	---
			Metals					---				
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.0E-05	---	9.8E-07	1.1E-05	---	---	---	---	---
			Chromium Total	6.8E-05	---	---	6.8E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.8E-04	---	4.1E-05	2.2E-04		---	---	---	---
		Exposure Point Total					2.2E-04					---
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs					---				
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	9.0E-11	---	9.0E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Metals					---				
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	5.6E-09	---	5.6E-09	---	---	---	---	---
			Chromium Total	---	1.3E-06	---	1.3E-06	---	---	---	---	---
			Cobalt	---	1.8E-08	---	1.8E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.7E-07	---	1.7E-07	---	---	---	---	---

TABLE A-9.1e3-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	1.5E-06	---	1.5E-06		---	---	---	---
		Exposure Point Total					1.5E-06					---
	Surface Soil Total						2.2E-04					---
Soil Total							2.2E-04					---

Total Risk Across All Media: 2.2E-04

Total Hazard Across All Media: ---

TABLE A-9.1e3-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	4.2E-07	---	3.6E-07	7.8E-07	---	---	---	---	---
			Benzo(a)pyrene	3.2E-06	---	2.8E-06	6.0E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.8E-07	---	3.2E-07	7.0E-07	---	---	---	---	---
			Benzo(k)fluoranthene	2.5E-08	---	2.2E-08	4.7E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.9E-07	---	5.1E-07	1.1E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.2E-07	---	1.9E-07	4.1E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0092	---	---	0.0092
			Arsenic	2.1E-06	---	4.1E-07	2.5E-06	Skin	0.013	---	0.0026	0.016
			Chromium Total	3.2E-06	---	---	3.2E-06	None observed	0.0060	---	---	0.0060
			Cobalt	---	---	---	---	Thyroid	0.020	---	---	0.020
			Iron	---	---	---	---	Gastrointestinal	0.019	---	---	0.019
			Manganese	---	---	---	---	Nervous system	0.0040	---	---	0.0040
			Mercury	---	---	---	---	Nervous system	0.0080	---	---	0.0080
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0069	---	---	0.0069
			Chemical Total	1.0E-05	---	4.6E-06	1.5E-05		0.087	---	0.0026	0.089
		Exposure Point Total					1.5E-05					0.089
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.5E-12	---	9.5E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	6.4E-12	---	6.4E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-11	---	1.6E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.6E-12	---	5.6E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00031	---	0.00031
			Arsenic	---	1.0E-09	---	1.0E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000044	---	0.000044
			Chromium Total	---	9.0E-08	---	9.0E-08	Respiratory tract	---	0.000030	---	0.000030
			Cobalt	---	3.3E-09	---	3.3E-09	Respiratory tract	---	0.00017	---	0.00017
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00093	---	0.00093
			Mercury	---	---	---	---	Nervous system	---	0.00000072	---	0.00000072
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.1E-08	---	3.1E-08	Larynx	---	0.0015	---	0.0015

TABLE A-9.1e3-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	1.3E-07	---	1.3E-07		---	0.0030	---	0.0030
		Exposure Point Total					1.3E-07					0.0030
	Surface Soil Total						1.5E-05					0.092
Soil Total							1.5E-05					0.092

Total Risk Across All Media	1.5E-05
Total Hazard Across All Media	0.092
Total Nervous System HI Across All Media	0.022
Total Skin HI Across All Media	0.016
Total Thyroid HI Across All Media	0.020
Total Gastrointestinal HI Across All Media	0.019
Total Hair HI Across All Media	0.0069
Total Developmental HI Across All Media	0.000044
Total Cardiovascular HI Across All Media	0.000044
Total Lung/Respiratory Tract HI Across All Media	0.00173

TABLE A-9.2e3-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.013	---	---	0.013
			Antimony	---	---	---	---	Blood	0.0017	---	---	0.0017
			Arsenic	---	---	---	---	Skin	0.023	---	0.0027	0.026
			Chromium Total	---	---	---	---	None observed	0.023	---	---	0.023
			Cobalt	---	---	---	---	Thyroid	0.030	---	---	0.030
			Iron	---	---	---	---	Gastrointestinal	0.028	---	---	0.028
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0058	---	---	0.0058
			Mercury	---	---	---	---	Nervous system	0.0068	---	---	0.0068
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0094	---	---	0.0094
			Chemical Total	---	---	---	---		0.14	---	0.0027	0.14
		Exposure Point Total					---					0.14
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00023	---	0.00023
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00034	---	0.00034
			Cobalt	---	---	---	---	Respiratory tract	---	0.00076	---	0.00076
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Manganese	---	---	---	---	Nervous system	---	0.0041	---	0.0041
			Mercury	---	---	---	---	Nervous system	---	0.0000018	---	0.0000018
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0061	---	0.0061
			Chemical Total	---	---	---	---		---	0.013	---	0.013
		Exposure Point Total					---					0.013
	Aggregate Soil Total						---					0.16
Soil Total							---					0.16

Total Risk Across All Media	---
Total Hazard Across All Media	0.16
Total Nervous System HI Across All Media	0.031
Total Blood HI Across All Media	0.0017
Total Skin HI Across All Media	0.026
Total Thyroid HI Across All Media	0.030
Total Gastrointestinal HI Across All Media	0.028
Total Hair HI Across All Media	0.0094
Total Developmental HI Across All Media	0.00023
Total Cardiovascular HI Across All Media	0.00023
Total Lung/Respiratory Tract HI Across All Media	0.0074

TABLE A-9.2e3-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.12	---	---	0.12
			Antimony	---	---	---	---	Blood	0.016	---	---	0.016
			Arsenic	---	---	---	---	Skin	0.21	---	0.018	0.23
			Chromium Total	---	---	---	---	None observed	0.21	---	---	0.21
			Cobalt	---	---	---	---	Thyroid	0.28	---	---	0.28
			Iron	---	---	---	---	Gastrointestinal	0.26	---	---	0.26
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.054	---	---	0.054
			Mercury	---	---	---	---	Nervous system	0.063	---	---	0.063
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.088	---	---	0.088
			Chemical Total	---	---	---	---		1.3	---	0.018	1.3
		Exposure Point Total					---					1.3
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00023	---	0.00023
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00034	---	0.00034
			Cobalt	---	---	---	---	Respiratory tract	---	0.00076	---	0.00076
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Manganese	---	---	---	---	Nervous system	---	0.0041	---	0.0041
			Mercury	---	---	---	---	Nervous system	---	0.0000018	---	0.0000018
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0061	---	0.0061
			Chemical Total	---	---	---	---		---	0.013	---	0.013
		Exposure Point Total					---					0.013
	Aggregate Soil Total						---					1.3
Soil Total							---					1.3

Total Risk Across All Media: ---

Total Hazard Across All Media: 1.3

Total Nervous System HI Across All Media	0.24
Total Blood HI Across All Media	0.016
Total Skin HI Across All Media	0.23
Total Thyroid HI Across All Media	0.28
Total Gastrointestinal HI Across All Media	0.26
Total Hair HI Across All Media	0.088
Total Developmental HI Across All Media	0.00023
Total Cardiovascular HI Across All Media	0.00023
Total Lung/Respiratory Tract HI Across All Media	0.0074

TABLE A-9.2e3-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	6.9E-06	---	2.6E-06	9.5E-06	---	---	---	---	---
			Benzo(a)pyrene	5.3E-05	---	2.0E-05	7.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	6.3E-06	---	2.4E-06	8.7E-06	---	---	---	---	---
			Benzo(k)fluoranthene	4.3E-07	---	1.7E-07	6.0E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	9.7E-06	---	3.7E-06	1.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.6E-06	---	1.4E-06	5.0E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	1.2E-05	---	1.1E-06	1.3E-05	---	---	---	---	---
			Chromium Total	1.7E-04	---	---	1.7E-04	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	2.6E-04	---	3.2E-05	2.9E-04		---	---	---	---
		Exposure Point Total					2.9E-04					---
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(a)pyrene	---	8.9E-10	---	8.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.2E-11	---	7.2E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.0E-11	---	6.0E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	6.4E-09	---	6.4E-09	---	---	---	---	---
			Chromium Total	---	3.1E-06	---	3.1E-06	---	---	---	---	---
			Cobalt	---	1.8E-08	---	1.8E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.5E-07	---	1.5E-07	---	---	---	---	---
			Chemical Total	---	3.3E-06	---	3.3E-06		---	---	---	---
		Exposure Point Total					3.3E-06					---
	Aggregate Soil Total						2.9E-04					---
Soil Total							2.9E-04					---

Total Risk Across All Media: 2.9E-04

Total Hazard Across All Media: ---

TABLE A-9.2e3-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	2.5E-08	---	9.6E-09	3.4E-08	---	---	---	---	---
			Benzo(a)pyrene	1.9E-07	---	7.4E-08	2.6E-07	---	---	---	---	---
			Benzo(b)fluoranthene	2.2E-08	---	8.7E-09	3.1E-08	---	---	---	---	---
			Benzo(k)fluoranthene	1.5E-09	---	6.0E-10	2.2E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.5E-08	---	1.4E-08	4.8E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-08	---	5.0E-09	1.8E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.016	---	---	0.016
			Antimony	---	---	---	---	Blood	0.0021	---	---	0.0021
			Arsenic	1.8E-07	---	1.6E-08	2.0E-07	Skin	0.028	---	0.0025	0.031
			Chromium Total	5.9E-07	---	---	5.9E-07	None observed	0.028	---	---	0.028
			Cobalt	---	---	---	---	Thyroid	0.037	---	---	0.037
			Iron	---	---	---	---	Gastrointestinal	0.034	---	---	0.034
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0070	---	---	0.0070
			Mercury	---	---	---	---	Nervous system	0.0083	---	---	0.0083
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.012	---	---	0.012
			Chemical Total	1.1E-06	---	1.3E-07	1.2E-06		0.17	---	0.0025	0.17
		Exposure Point Total					1.2E-06					0.17
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.5E-09	---	1.5E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.9E-11	---	9.9E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.16	---	0.16
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	2.6E-08	---	2.6E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.029	---	0.029
			Chromium Total	---	5.1E-06	---	5.1E-06	Respiratory tract	---	0.042	---	0.042
			Cobalt	---	7.2E-08	---	7.2E-08	Respiratory tract	---	0.094	---	0.094
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Manganese	---	---	---	---	Nervous system	---	0.50	---	0.50
			Mercury	---	---	---	---	Nervous system	---	0.00023	---	0.00023
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	6.3E-07	---	6.3E-07	Larynx	---	0.053	---	0.053
			Chemical Total	---	5.8E-06	---	5.8E-06		---	0.88	---	0.88
		Exposure Point Total					5.8E-06					0.88
	Aggregate Soil Total						7.0E-06					1.1
Soil Total							7.0E-06					1.1

Total Risk Across All Media	7.0E-06
Total Hazard Across All Media	1.1
Total Nervous System HI Across All Media	0.73
Total Blood HI Across All Media	0.0021
Total Skin HI Across All Media	0.059
Total Thyroid HI Across All Media	0.037
Total Gastrointestinal HI Across All Media	0.034
Total Hair HI Across All Media	0.012
Total Developmental HI Across All Media	0.029
Total Cardiovascular HI Across All Media	0.029
Total Lung/Respiratory Tract HI Across All Media	0.22

TABLE A-9.1e3-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0071	---	---	0.0071
			Arsenic	---	---	---	---	Skin	0.010	---	0.00034	0.010
			Chromium Total	---	---	---	---	None observed	0.0046	---	---	0.0046
			Cobalt	---	---	---	---	Thyroid	0.016	---	---	0.016
			Iron	---	---	---	---	Gastrointestinal	0.015	---	---	0.015
			Manganese	---	---	---	---	Nervous system	0.0031	---	---	0.0031
			Mercury	---	---	---	---	Nervous system	0.0062	---	---	0.0062
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0054	---	---	0.0054
			Chemical Total	---	---	---	---		0.068	---	0.00034	0.068
		Exposure Point Total					---					0.068
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00020	---	0.00020
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00014	---	0.00014
			Cobalt	---	---	---	---	Respiratory tract	---	0.00080	---	0.00080
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000033	---	0.0000033
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0069	---	0.0069

TABLE A-9.1e3-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	---	---	---		---	0.014	---	0.014
		Exposure Point Total					---					0.014
	Surface Soil Total						---					0.082
Soil Total							---					0.082

Total Risk Across All Media	---
Total Hazard Across All Media	0.082
Total Nervous System HI Across All Media	0.022
Total Skin HI Across All Media	0.011
Total Thyroid HI Across All Media	0.016
Total Gastrointestinal HI Across All Media	0.015
Total Hair HI Across All Media	0.0054
Total Developmental HI Across All Media	0.00020
Total Cardiovascular HI Across All Media	0.00020
Total Lung/Respiratory Tract HI Across All Media	0.0081

TABLE A-9.1e3-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.066	---	---	0.066
			Arsenic	---	---	---	---	Skin	0.094	---	0.0032	0.097
			Chromium Total	---	---	---	---	None observed	0.043	---	---	0.043
			Cobalt	---	---	---	---	Thyroid	0.15	---	---	0.15
			Iron	---	---	---	---	Gastrointestinal	0.14	---	---	0.14
			Manganese	---	---	---	---	Nervous system	0.029	---	---	0.029
			Mercury	---	---	---	---	Nervous system	0.058	---	---	0.058
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.050	---	---	0.050
			Chemical Total	---	---	---	---		0.63	---	0.0032	0.63
		Exposure Point Total					---					0.63
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00020	---	0.00020
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00014	---	0.00014
			Cobalt	---	---	---	---	Respiratory tract	---	0.00080	---	0.00080
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0044	---	0.0044
			Mercury	---	---	---	---	Nervous system	---	0.0000033	---	0.0000033
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0069	---	0.0069

TABLE A-9.1e3-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	---	---	---		---	0.014	---	0.014
		Exposure Point Total					---					0.014
	Surface Soil Total						---					0.65
Soil Total							---					0.65

Total Risk Across All Media	---
Total Hazard Across All Media	0.65
Total Nervous System HI Across All Media	0.16
Total Skin HI Across All Media	0.097
Total Thyroid HI Across All Media	0.15
Total Gastrointestinal HI Across All Media	0.14
Total Kidney HI Across All Media	0.050
Total Developmental HI Across All Media	0.00020
Total Cardiovascular HI Across All Media	0.00020
Total Lung/Respiratory Tract HI Across All Media	0.0081

TABLE A-9.1e3-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs					---				
			Benzo(a)anthracene	2.7E-06	---	4.0E-07	3.1E-06	---	---	---	---	---
			Benzo(a)pyrene	2.1E-05	---	3.0E-06	2.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.4E-06	---	3.5E-07	2.8E-06	---	---	---	---	---
			Benzo(k)fluoranthene	1.6E-07	---	2.4E-08	1.9E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.8E-06	---	5.6E-07	4.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.4E-06	---	2.1E-07	1.6E-06	---	---	---	---	---
			Metals					---				
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.7E-06	---	5.6E-08	1.7E-06	---	---	---	---	---
			Chromium Total	2.1E-05	---	---	2.1E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	5.4E-05	---	4.6E-06	5.8E-05		---	---	---	---
		Exposure Point Total					5.8E-05					---
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs					---				
			Benzo(a)anthracene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	6.2E-10	---	6.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	7.2E-11	---	7.2E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.9E-11	---	4.9E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.3E-11	---	4.3E-11	---	---	---	---	---
			Metals					---				
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.7E-09	---	1.7E-09	---	---	---	---	---
			Chromium Total	---	6.9E-07	---	6.9E-07	---	---	---	---	---
			Cobalt	---	5.5E-09	---	5.5E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	5.2E-08	---	5.2E-08	---	---	---	---	---

TABLE A-9.1e3-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	7.5E-07	---	7.5E-07		---	---	---	---
		Exposure Point Total					7.5E-07					---
	Surface Soil Total						5.9E-05					---
Soil Total							5.9E-05					---

Total Risk Across All Media: 5.9E-05

Total Hazard Across All Media: ---

TABLE A-9.1e3-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.5E-08	---	2.6E-09	1.8E-08	---	---	---	---	---
			Benzo(a)pyrene	1.2E-07	---	2.0E-08	1.4E-07	---	---	---	---	---
			Benzo(b)fluoranthene	1.4E-08	---	2.3E-09	1.6E-08	---	---	---	---	---
			Benzo(k)fluoranthene	9.1E-10	---	1.6E-10	1.1E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.1E-08	---	3.6E-09	2.5E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	8.0E-09	---	1.4E-09	9.4E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00092	---	---	0.00092
			Arsenic	7.5E-08	---	3.0E-09	7.8E-08	Skin	0.0013	---	0.000051	0.0013
			Chromium Total	1.2E-07	---	---	1.2E-07	None observed	0.00060	---	---	0.00060
			Cobalt	---	---	---	---	Thyroid	0.0020	---	---	0.0020
			Iron	---	---	---	---	Gastrointestinal	0.0019	---	---	0.0019
			Manganese	---	---	---	---	Nervous system	0.00040	---	---	0.00040
			Mercury	---	---	---	---	Nervous system	0.00080	---	---	0.00080
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.00069	---	---	0.00069
			Chemical Total	3.6E-07	---	3.3E-08	4.0E-07		0.0087	---	0.000051	0.0087
		Exposure Point Total					4.0E-07					0.0087
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	7.7E-13	---	7.7E-13	---	---	---	---	---
			Benzo(a)pyrene	---	5.8E-12	---	5.8E-12	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.8E-13	---	6.8E-13	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.6E-13	---	4.6E-13	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.2E-12	---	1.2E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.1E-13	---	4.1E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.000062	---	0.000062
			Arsenic	---	7.2E-11	---	7.2E-11	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0000087	---	0.0000087
			Chromium Total	---	6.5E-09	---	6.5E-09	Respiratory tract	---	0.0000060	---	0.0000060
			Cobalt	---	2.4E-10	---	2.4E-10	Respiratory tract	---	0.000034	---	0.000034
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00019	---	0.00019
			Mercury	---	---	---	---	Nervous system	---	0.00000014	---	0.00000014
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	2.2E-09	---	2.2E-09	Larynx	---	0.00030	---	0.00030

TABLE A-9.1e3-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area E3	Chemical Total	---	9.1E-09	---	9.1E-09		---	0.00059	---	0.00059
		Exposure Point Total					9.1E-09					0.00059
	Surface Soil Total						4.1E-07					0.0093
Soil Total							4.1E-07					0.0093

Total Risk Across All Media	4.1E-07
Total Hazard Across All Media	0.0093
Total Nervous System HI Across All Media	0.0024
Total Skin HI Across All Media	0.0014
Total Thyroid HI Across All Media	0.0020
Total Gastrointestinal HI Across All Media	0.0019
Total Hair HI Across All Media	0.00069
Total Developmental HI Across All Media	0.0000087
Total Cardiovascular HI Across All Media	0.0000087
Total Lung/Respiratory Tract HI Across All Media	0.00035

TABLE A-9.2e3-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0065	---	---	0.0065
			Antimony	---	---	---	---	Blood	0.00086	---	---	0.00086
			Arsenic	---	---	---	---	Skin	0.011	---	0.00039	0.012
			Chromium Total	---	---	---	---	None observed	0.0113	---	---	0.0113
			Cobalt	---	---	---	---	Thyroid	0.015	---	---	0.015
			Iron	---	---	---	---	Gastrointestinal	0.014	---	---	0.014
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0029	---	---	0.0029
			Mercury	---	---	---	---	Nervous system	0.0034	---	---	0.0034
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0047	---	---	0.0047
			Chemical Total	---	---	---	---		0.070	---	0.00039	0.071
		Exposure Point Total					---					0.071
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00023	---	0.00023
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00034	---	0.00034
			Cobalt	---	---	---	---	Respiratory tract	---	0.00076	---	0.00076
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Manganese	---	---	---	---	Nervous system	---	0.0041	---	0.0041
			Mercury	---	---	---	---	Nervous system	---	0.0000018	---	0.0000018
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0061	---	0.0061
			Chemical Total	---	---	---	---		---	0.013	---	0.013
		Exposure Point Total					---					0.013
	Aggregate Soil Total						---					0.083
Soil Total							---					0.083

Total Risk Across All Media	---
Total Hazard Across All Media	0.083
Total Nervous System HI Across All Media	0.018
Total Blood HI Across All Media	0.00086
Total Skin HI Across All Media	0.012
Total Thyroid HI Across All Media	0.015
Total Gastrointestinal HI Across All Media	0.014
Total Hair HI Across All Media	0.0047
Total Developmental HI Across All Media	0.00023
Total Cardiovascular HI Across All Media	0.00023
Total Lung/Respiratory Tract HI Across All Media	0.0074

TABLE A-9.2e3-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.061	---	---	0.061
			Antimony	---	---	---	---	Blood	0.0080	---	---	0.0080
			Arsenic	---	---	---	---	Skin	0.11	---	0.0036	0.11
			Chromium Total	---	---	---	---	None observed	0.11	---	---	0.11
			Cobalt	---	---	---	---	Thyroid	0.14	---	---	0.14
			Iron	---	---	---	---	Gastrointestinal	0.13	---	---	0.13
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.027	---	---	0.027
			Mercury	---	---	---	---	Nervous system	0.032	---	---	0.032
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.044	---	---	0.044
			Chemical Total	---	---	---	---		0.65	---	0.0036	0.66
		Exposure Point Total					---					0.66
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00023	---	0.00023
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00034	---	0.00034
			Cobalt	---	---	---	---	Respiratory tract	---	0.00076	---	0.00076
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Manganese	---	---	---	---	Nervous system	---	0.0041	---	0.0041
			Mercury	---	---	---	---	Nervous system	---	0.0000018	---	0.0000018
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.0061	---	0.0061
			Chemical Total	---	---	---	---		---	0.013	---	0.013
		Exposure Point Total					---					0.013
	Aggregate Soil Total						---					0.67
Soil Total							---					0.67

Total Risk Across All Media	---
Total Hazard Across All Media	0.67
Total Nervous System HI Across All Media	0.13
Total Blood HI Across All Media	0.0080
Total Skin HI Across All Media	0.11
Total Thyroid HI Across All Media	0.14
Total Gastrointestinal HI Across All Media	0.13
Total Hair HI Across All Media	0.044
Total Developmental HI Across All Media	0.00023
Total Cardiovascular HI Across All Media	0.00023
Total Lung/Respiratory Tract HI Across All Media	0.0074

TABLE A-9.2e3-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.1E-06	---	3.0E-07	2.4E-06	---	---	---	---	---
			Benzo(a)pyrene	1.6E-05	---	2.3E-06	1.8E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.9E-06	---	2.8E-07	2.2E-06	---	---	---	---	---
			Benzo(k)fluoranthene	1.3E-07	---	1.9E-08	1.5E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-06	---	4.3E-07	3.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.6E-07	1.3E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	1.9E-06	---	6.4E-08	2.0E-06	---	---	---	---	---
			Chromium Total	5.0E-05	---	---	5.0E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	7.6E-05	---	3.6E-06	8.0E-05		---	---	---	---
		Exposure Point Total					8.0E-05					---
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	6.2E-11	---	6.2E-11	---	---	---	---	---
			Benzo(a)pyrene	---	4.8E-10	---	4.8E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.7E-11	---	5.7E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	3.9E-11	---	3.9E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	9.5E-11	---	9.5E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.3E-11	---	3.3E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Chromium Total	---	1.7E-06	---	1.7E-06	---	---	---	---	---
			Cobalt	---	5.3E-09	---	5.3E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	4.6E-08	---	4.6E-08	---	---	---	---	---
			Chemical Total	---	1.7E-06	---	1.7E-06		---	---	---	---
		Exposure Point Total					1.7E-06					---
	Aggregate Soil Total						8.2E-05					---
Soil Total							8.2E-05					---

Total Risk Across All Media: 8.2E-05

Total Hazard Across All Media: ---

TABLE A-9.2e3-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	1.5E-09	---	6.4E-10	2.1E-09	---	---	---	---	---
			Benzo(a)pyrene	1.2E-08	---	4.9E-09	1.6E-08	---	---	---	---	---
			Benzo(b)fluoranthene	1.4E-09	---	5.8E-10	1.9E-09	---	---	---	---	---
			Benzo(k)fluoranthene	9.4E-11	---	4.0E-11	1.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.1E-09	---	9.0E-10	3.0E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	7.8E-10	---	3.4E-10	1.1E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00097	---	---	0.00097
			Antimony	---	---	---	---	Blood	0.00013	---	---	0.00013
			Arsenic	1.1E-08	---	1.1E-09	1.2E-08	Skin	0.0017	---	0.00017	0.0019
			Chromium Total	3.6E-08	---	---	3.6E-08	None observed	0.0017	---	---	0.0017
			Cobalt	---	---	---	---	Thyroid	0.0022	---	---	0.0022
			Iron	---	---	---	---	Gastrointestinal	0.0021	---	---	0.0021
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00043	---	---	0.00043
			Mercury	---	---	---	---	Nervous system	0.00050	---	---	0.00050
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.00070	---	---	0.00070
			Chemical Total	6.4E-08	---	8.5E-09	7.3E-08		0.010	---	0.00017	0.011
		Exposure Point Total					7.3E-08					0.011
		Air at Risk Area E3	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHS									
			Benzo(a)anthracene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.4E-11	---	3.4E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.4E-11	---	2.4E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.8E-11	---	5.8E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.033	---	0.033
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	5.3E-09	---	5.3E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0057	---	0.0057
			Chromium Total	---	1.0E-06	---	1.0E-06	Respiratory tract	---	0.0084	---	0.0084
			Cobalt	---	1.4E-08	---	1.4E-08	Respiratory tract	---	0.019	---	0.019
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---

TABLE A-9.2e3-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area E3	Manganese	---	---	---	---	Nervous system	---	0.10	---	0.10
			Mercury	---	---	---	---	Nervous system	---	0.000045	---	0.000045
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.3E-07	---	1.3E-07	Larynx	---	0.011	---	0.011
			Chemical Total	---	1.2E-06	---	1.2E-06		---	0.18	---	0.18
		Exposure Point Total					1.2E-06					0.18
	Aggregate Soil Total						1.2E-06					0.19
Soil Total							1.2E-06					0.19

Total Risk Across All Media	1.2E-06
Total Hazard Across All Media	0.19
Total Nervous System HI Across All Media	0.14
Total Blood HI Across All Media	0.00013
Total Skin HI Across All Media	0.0076
Total Thyroid HI Across All Media	0.0022
Total Gastrointestinal HI Across All Media	0.0021
Total Hair HI Across All Media	0.00070
Total Developmental HI Across All Media	0.0057
Total Cardiovascular HI Across All Media	0.0057
Total Lung/Respiratory Tract HI Across All Media	0.043

TABLE A-9.1f-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.00029	---	0.00011	0.00040
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.014	---	---	0.014
			Arsenic	---	---	---	---	Skin	0.035	---	0.0042	0.039
			Cadmium	---	---	---	---	Kidney	0.0086	---	0.0014	0.010
			Chromium Total	---	---	---	---	None observed	0.0084	---	---	0.0084
			Cobalt	---	---	---	---	Thyroid	0.029	---	---	0.029
			Iron	---	---	---	---	Gastrointestinal	0.027	---	---	0.027
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0057	---	---	0.0057
			Mercury	---	---	---	---	Nervous system	0.0033	---	---	0.0033
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.023	---	---	0.023
			Zinc	---	---	---	---	Blood	0.0080	---	---	0.0080
			Chemical Total	---	---	---	---		0.16	---	0.0056	0.17
		Exposure Point Total					---					0.17
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00035	---	0.00035
			Cadmium	---	---	---	---	Kidney	---	0.00044	---	0.00044
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00013	---	0.00013

TABLE A-9.1f-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0040	---	0.0040
			Mercury	---	---	---	---	Nervous system	---	0.00000090	---	0.00000090
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.015	---	0.015
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.022	---	0.022
		Exposure Point Total					---					0.022
	Surface Soil Total						---					0.19
Soil Total							---					0.19

Total Risk Across All Media	---
Total Hazard Across All Media	0.19
Total Liver HI Across All Media	0.00040
Total Nervous System HI Across All Media	0.029
Total Skin HI Across All Media	0.039
Total Kidney HI Across All Media	0.010
Total Thyroid HI Across All Media	0.029
Total Gastrointestinal HI Across All Media	0.027
Total Hair HI Across All Media	0.023
Total Blood HI Across All Media	0.0080
Total Developmental HI Across All Media	0.00035
Total Cardiovascular HI Across All Media	0.00035
Total Lung/Respiratory Tract HI Across All Media	0.016

TABLE A-9.1f-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.0027	---	0.00075	0.0034
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.13	---	---	0.13
			Arsenic	---	---	---	---	Skin	0.32	---	0.027	0.35
			Cadmium	---	---	---	---	Kidney	0.081	---	0.0090	0.090
			Chromium Total	---	---	---	---	None observed	0.078	---	---	0.078
			Cobalt	---	---	---	---	Thyroid	0.27	---	---	0.27
			Iron	---	---	---	---	Gastrointestinal	0.26	---	---	0.26
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.053	---	---	0.053
			Mercury	---	---	---	---	Nervous system	0.031	---	---	0.031
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.22	---	---	0.22
			Zinc	---	---	---	---	Blood	0.075	---	---	0.075
			Chemical Total	---	---	---	---		1.5	---	0.037	1.6
		Exposure Point Total					---					1.6
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00035	---	0.00035
			Cadmium	---	---	---	---	Kidney	---	0.00044	---	0.00044
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00013	---	0.00013

TABLE A-9.1f-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0040	---	0.0040
			Mercury	---	---	---	---	Nervous system	---	0.00000090	---	0.00000090
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.015	---	0.015
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.022	---	0.022
		Exposure Point Total					---					0.022
	Surface Soil Total						---					1.6
Soil Total							---					1.6

Total Risk Across All Media	---
Total Hazard Across All Media	1.6
Total Liver HI Across All Media	0.0034
Total Nervous System HI Across All Media	0.22
Total Skin HI Across All Media	0.35
Total Kidney HI Across All Media	0.090
Total Thyroid HI Across All Media	0.27
Total Gastrointestinal HI Across All Media	0.26
Total Hair HI Across All Media	0.22
Total Blood HI Across All Media	0.075
Total Developmental HI Across All Media	0.00035
Total Cardiovascular HI Across All Media	0.00035
Total Lung/Respiratory Tract HI Across All Media	0.016

TABLE A-9.1f-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	Dieldrin	2.6E-07	---	8.3E-08	3.5E-07	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	9.1E-06	---	3.5E-06	1.3E-05	---	---	---	---	---
			Benzo(a)pyrene	5.1E-05	---	2.0E-05	7.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.0E-05	---	4.0E-06	1.4E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.0E-06	---	3.8E-07	1.4E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.7E-05	---	6.6E-06	2.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.8E-06	---	1.5E-06	5.2E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.8E-05	---	1.7E-06	2.0E-05	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	6.2E-05	---	---	6.2E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	1.7E-04	---	3.7E-05	2.1E-04		---	---	---	---
		Exposure Point Total					2.1E-04					---
		Air at Risk Area F	Dieldrin	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	8.6E-10	---	8.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.3E-11	---	6.3E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	9.7E-09	---	9.7E-09	---	---	---	---	---
			Cadmium	---	3.4E-09	---	3.4E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---

TABLE A-9.1f-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area F	Cobalt	---	1.7E-08	---	1.7E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.8E-07	---	3.8E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.6E-06	---	1.6E-06		---	---	---	---
		Exposure Point Total					1.6E-06					---
	Surface Soil Total						2.1E-04					---
Soil Total							2.1E-04					---

Total Risk Across All Media: 2.1E-04

Total Hazard Across All Media: ---

TABLE A-9.2f-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.00021	---	0.000085	0.00030
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.013	---	---	0.013
			Arsenic	---	---	---	---	Skin	0.033	---	0.0040	0.037
			Cadmium	---	---	---	---	Kidney	0.0086	---	0.0014	0.010
			Chromium Total	---	---	---	---	None observed	0.049	---	---	0.049
			Cobalt	---	---	---	---	Thyroid	0.029	---	---	0.029
			Iron	---	---	---	---	Gastrointestinal	0.030	---	---	0.030
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0059	---	---	0.0059
			Mercury	---	---	---	---	Nervous system	0.0032	---	---	0.0032
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.020	---	---	0.020
			Zinc	---	---	---	---	Blood	0.0073	---	---	0.0073
			Chemical Total	---	---	---	---		0.20	---	0.0054	0.20
		Exposure Point Total					---					0.20
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00034	---	0.00034
			Cadmium	---	---	---	---	Kidney	---	0.00043	---	0.00043
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073

TABLE A-9.2f-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0042	---	0.0042
			Mercury	---	---	---	---	Nervous system	---	0.00000085	---	0.00000085
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.013	---	0.013
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.021	---	0.021
		Exposure Point Total					---					0.021
	Aggregate Soil Total						---					0.23
Soil Total							---					0.23

Total Risk Across All Media	---
Total Hazard Across All Media	0.23
Total Liver HI Across All Media	0.00030
Total Nervous System HI Across All Media	0.028
Total Skin HI Across All Media	0.038
Total Kidney HI Across All Media	0.010
Total Thyroid HI Across All Media	0.029
Total Gastrointestinal HI Across All Media	0.030
Total Hair HI Across All Media	0.020
Total Blood HI Across All Media	0.0073
Total Developmental HI Across All Media	0.00034
Total Cardiovascular HI Across All Media	0.00034
Total Lung/Respiratory Tract HI Across All Media	0.015

TABLE A-9.2f-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.0020	---	0.00055	0.0025
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.12	---	---	0.12
			Arsenic	---	---	---	---	Skin	0.31	---	0.026	0.34
			Cadmium	---	---	---	---	Kidney	0.080	---	0.0090	0.089
			Chromium Total	---	---	---	---	None observed	0.45	---	---	0.45
			Cobalt	---	---	---	---	Thyroid	0.27	---	---	0.27
			Iron	---	---	---	---	Gastrointestinal	0.28	---	---	0.28
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.055	---	---	0.055
			Mercury	---	---	---	---	Nervous system	0.030	---	---	0.030
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.19	---	---	0.19
			Zinc	---	---	---	---	Blood	0.068	---	---	0.068
			Chemical Total	---	---	---	---		1.9	---	0.036	1.9
		Exposure Point Total					---					1.9
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00034	---	0.00034
			Cadmium	---	---	---	---	Kidney	---	0.00043	---	0.00043
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073

TABLE A-9.2f-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0042	---	0.0042
			Mercury	---	---	---	---	Nervous system	---	0.00000085	---	0.00000085
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.013	---	0.013
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.021	---	0.021
		Exposure Point Total					---					0.021
	Aggregate Soil Total						---					1.9
Soil Total							---					1.9

Total Risk Across All Media	---
Total Hazard Across All Media	1.9
Total Liver HI Across All Media	0.0025
Total Nervous System HI Across All Media	0.21
Total Skin HI Across All Media	0.34
Total Kidney HI Across All Media	0.090
Total Thyroid HI Across All Media	0.27
Total Gastrointestinal HI Across All Media	0.28
Total Hair HI Across All Media	0.19
Total Blood HI Across All Media	0.068
Total Developmental HI Across All Media	0.00034
Total Cardiovascular HI Across All Media	0.00034
Total Lung/Respiratory Tract HI Across All Media	0.015

TABLE A-9.2f-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	1.9E-07	---	6.1E-08	2.6E-07	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	7.9E-06	---	3.0E-06	1.1E-05	---	---	---	---	---
			Benzo(a)pyrene	6.6E-05	---	2.5E-05	9.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.9E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(k)fluoranthene	8.6E-07	---	3.3E-07	1.2E-06	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.6E-05	---	6.1E-06	2.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-06	---	1.3E-06	4.9E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	1.7E-05	---	1.6E-06	1.9E-05	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	3.6E-04	---	---	3.6E-04	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	4.8E-04	---	4.1E-05	5.2E-04		---	---	---	---
		Exposure Point Total					5.2E-04					---
		Air at Risk Area F	Dieldrin	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.9E-11	---	5.9E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	9.3E-09	---	9.3E-09	---	---	---	---	---
			Cadmium	---	3.3E-09	---	3.3E-09	---	---	---	---	---
			Chromium Total	---	6.6E-06	---	6.6E-06	---	---	---	---	---

TABLE A-9.2f-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	1.7E-08	---	1.7E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.3E-07	---	3.3E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	7.0E-06	---	7.0E-06		---	---	---	---
		Exposure Point Total					7.0E-06					---
	Aggregate Soil Total						5.2E-04					---
Soil Total							5.2E-04					---

Total Risk Across All Media: 5.2E-04

Total Hazard Across All Media: ---

TABLE A-9.2f-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	3.0E-09	---	8.9E-10	3.9E-09	Liver	0.00026	---	0.000078	0.00034
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.8E-08	---	1.1E-08	3.9E-08	---	---	---	---	---
			Benzo(a)pyrene	2.3E-07	---	9.2E-08	3.3E-07	---	---	---	---	---
			Benzo(b)fluoranthene	3.2E-08	---	1.2E-08	4.4E-08	---	---	---	---	---
			Benzo(k)fluoranthene	3.1E-09	---	1.2E-09	4.3E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.7E-08	---	2.2E-08	7.9E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-08	---	4.9E-09	1.7E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.016	---	---	0.016
			Arsenic	2.6E-07	---	2.4E-08	2.9E-07	Skin	0.041	---	0.0037	0.045
			Cadmium	---	---	---	---	Kidney	0.011	---	0.0013	0.012
			Chromium Total	1.3E-06	---	---	1.3E-06	None observed	0.059	---	---	0.059
			Cobalt	---	---	---	---	Thyroid	0.036	---	---	0.036
			Iron	---	---	---	---	Gastrointestinal	0.036	---	---	0.036
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0073	---	---	0.0073
			Mercury	---	---	---	---	Nervous system	0.0039	---	---	0.0039
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.025	---	---	0.025
			Zinc	---	---	---	---	Blood	0.0090	---	---	0.0090
			Chemical Total	1.9E-06	---	1.7E-07	2.1E-06		0.24	---	0.0050	0.25
		Exposure Point Total					2.1E-06					0.25
		Air at Risk Area F	Dieldrin	---	4.3E-11	---	4.3E-11	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.8E-09	---	1.8E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.4E-10	---	2.4E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.8E-10	---	4.8E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.6E-11	---	9.6E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.16	---	0.16
			Arsenic	---	3.8E-08	---	3.8E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.042	---	0.042
			Cadmium	---	1.4E-08	---	1.4E-08	Kidney	---	0.054	---	0.054
			Chromium Total	---	1.1E-05	---	1.1E-05	Respiratory tract	---	0.091	---	0.091

TABLE A-9.2f-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	7.0E-08	---	7.0E-08	Respiratory tract	---	0.091	---	0.091
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.52	---	0.52
			Mercury	---	---	---	---	Nervous system	---	0.00011	---	0.00011
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.4E-06	---	1.4E-06	Larynx	---	0.11	---	0.11
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.2E-05	---	1.2E-05		---	1.1	---	1.1
		Exposure Point Total					1.2E-05					1.1
	Aggregate Soil Total						1.4E-05					1.3
Soil Total							1.4E-05					1.3

Total Risk Across All Media	1.4E-05
Total Hazard Across All Media	1.3
Total Liver HI Across All Media	0.00034
Total Nervous System HI Across All Media	0.75
Total Skin HI Across All Media	0.086
Total Kidney HI Across All Media	0.065
Total Thyroid HI Across All Media	0.036
Total Gastrointestinal HI Across All Media	0.036
Total Hair HI Across All Media	0.025
Total Blood HI Across All Media	0.0090
Total Developmental HI Across All Media	0.042
Total Cardiovascular HI Across All Media	0.042
Total Lung/Respiratory Tract HI Across All Media	0.34

TABLE A-9.1f-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.00014	---	0.000016	0.00016
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0069	---	---	0.0069
			Arsenic	---	---	---	---	Skin	0.017	---	0.00059	0.018
			Cadmium	---	---	---	---	Kidney	0.0043	---	0.00020	0.0045
			Chromium Total	---	---	---	---	None observed	0.0042	---	---	0.0042
			Cobalt	---	---	---	---	Thyroid	0.014	---	---	0.014
			Iron	---	---	---	---	Gastrointestinal	0.014	---	---	0.014
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0029	---	---	0.0029
			Mercury	---	---	---	---	Nervous system	0.0017	---	---	0.0017
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.012	---	---	0.012
			Zinc	---	---	---	---	Blood	0.0040	---	---	0.0040
			Chemical Total	---	---	---	---		0.081	---	0.00081	0.082
		Exposure Point Total					---					0.082
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00035	---	0.00035
			Cadmium	---	---	---	---	Kidney	---	0.00044	---	0.00044
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00013	---	0.00013

TABLE A-9.1f-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0040	---	0.0040
			Mercury	---	---	---	---	Nervous system	---	0.00000090	---	0.00000090
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.015	---	0.015
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.022	---	0.022
		Exposure Point Total					---					0.022
	Surface Soil Total						---					0.10
Soil Total							---					0.10

Total Risk Across All Media	---
Total Hazard Across All Media	0.10
Total Liver HI Across All Media	0.00016
Total Nervous System HI Across All Media	0.017
Total Skin HI Across All Media	0.018
Total Kidney HI Across All Media	0.005
Total Thyroid HI Across All Media	0.014
Total Gastrointestinal HI Across All Media	0.014
Total Hair HI Across All Media	0.012
Total Blood HI Across All Media	0.0040
Total Developmental HI Across All Media	0.00035
Total Cardiovascular HI Across All Media	0.00035
Total Lung/Respiratory Tract HI Across All Media	0.016

TABLE A-9.1f-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.0013	---	0.00015	0.0015
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.064	---	---	0.064
			Arsenic	---	---	---	---	Skin	0.16	---	0.0054	0.17
			Cadmium	---	---	---	---	Kidney	0.040	---	0.0018	0.042
			Chromium Total	---	---	---	---	None observed	0.039	---	---	0.039
			Cobalt	---	---	---	---	Thyroid	0.13	---	---	0.13
			Iron	---	---	---	---	Gastrointestinal	0.13	---	---	0.13
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.027	---	---	0.027
			Mercury	---	---	---	---	Nervous system	0.016	---	---	0.016
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.11	---	---	0.11
			Zinc	---	---	---	---	Blood	0.037	---	---	0.037
			Chemical Total	---	---	---	---		0.76	---	0.0074	0.77
		Exposure Point Total					---					0.77
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0014	---	0.0014
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00035	---	0.00035
			Cadmium	---	---	---	---	Kidney	---	0.00044	---	0.00044
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00013	---	0.00013

TABLE A-9.1f-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0040	---	0.0040
			Mercury	---	---	---	---	Nervous system	---	0.00000090	---	0.00000090
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.015	---	0.015
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.022	---	0.022
		Exposure Point Total					---					0.022
	Surface Soil Total						---					0.79
Soil Total							---					0.79

Total Risk Across All Media	---
Total Hazard Across All Media	0.79
Total Liver HI Across All Media	0.0015
Total Nervous System HI Across All Media	0.11
Total Skin HI Across All Media	0.17
Total Kidney HI Across All Media	0.043
Total Thyroid HI Across All Media	0.13
Total Gastrointestinal HI Across All Media	0.13
Total Hair HI Across All Media	0.11
Total Blood HI Across All Media	0.037
Total Developmental HI Across All Media	0.00035
Total Cardiovascular HI Across All Media	0.00035
Total Lung/Respiratory Tract HI Across All Media	0.016

TABLE A-9.1f-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	Dieldrin	4.2E-08	---	4.7E-09	4.7E-08	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.8E-06	---	4.0E-07	3.2E-06	---	---	---	---	---
			Benzo(a)pyrene	1.6E-05	---	2.3E-06	1.8E-05	---	---	---	---	---
			Benzo(b)fluoranthene	3.1E-06	---	4.6E-07	3.6E-06	---	---	---	---	---
			Benzo(k)fluoranthene	3.0E-07	---	4.4E-08	3.5E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.2E-06	---	7.6E-07	6.0E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.7E-07	1.3E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	2.9E-06	---	9.7E-08	3.0E-06	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	1.9E-05	---	---	1.9E-05	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	5.0E-05	---	4.2E-06	5.4E-05		---	---	---	---
		Exposure Point Total					5.4E-05					---
		Air at Risk Area F	Dieldrin	---	4.3E-12	---	4.3E-12	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			Benzo(a)pyrene	---	4.6E-10	---	4.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.3E-11	---	9.3E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	9.0E-11	---	9.0E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.4E-11	---	3.4E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	2.9E-09	---	2.9E-09	---	---	---	---	---
			Cadmium	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Chromium Total	---	6.2E-07	---	6.2E-07	---	---	---	---	---

TABLE A-9.1f-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area F	Cobalt	---	5.1E-09	---	5.1E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.1E-07	---	1.1E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	7.4E-07	---	7.4E-07		---	---	---	---
		Exposure Point Total					7.4E-07					---
	Surface Soil Total						5.5E-05					---
Soil Total							5.5E-05					---

Total Risk Across All Media: 5.5E-05

Total Hazard Across All Media: ---

TABLE A-9.2f-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.00011	---	0.000012	0.00012
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0064	---	---	0.0064
			Arsenic	---	---	---	---	Skin	0.017	---	0.00057	0.017
			Cadmium	---	---	---	---	Kidney	0.0043	---	0.00020	0.0045
			Chromium Total	---	---	---	---	None observed	0.024	---	---	0.024
			Cobalt	---	---	---	---	Thyroid	0.015	---	---	0.015
			Iron	---	---	---	---	Gastrointestinal	0.015	---	---	0.015
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0030	---	---	0.0030
			Mercury	---	---	---	---	Nervous system	0.0016	---	---	0.0016
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.010	---	---	0.010
			Zinc	---	---	---	---	Blood	0.0037	---	---	0.0037
			Chemical Total	---	---	---	---		0.10	---	0.00078	0.10
		Exposure Point Total					---					0.10
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00034	---	0.00034
			Cadmium	---	---	---	---	Kidney	---	0.00043	---	0.00043
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073

TABLE A-9.2f-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0042	---	0.0042
			Mercury	---	---	---	---	Nervous system	---	0.00000085	---	0.00000085
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.013	---	0.013
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.021	---	0.021
		Exposure Point Total					---					0.021
	Aggregate Soil Total						---					0.12
Soil Total							---					0.12

Total Risk Across All Media	---
Total Hazard Across All Media	0.12
Total Liver HI Across All Media	0.00012
Total Nervous System HI Across All Media	0.017
Total Skin HI Across All Media	0.018
Total Kidney HI Across All Media	0.005
Total Thyroid HI Across All Media	0.015
Total Gastrointestinal HI Across All Media	0.015
Total Hair HI Across All Media	0.010
Total Blood HI Across All Media	0.0037
Total Developmental HI Across All Media	0.00034
Total Cardiovascular HI Across All Media	0.00034
Total Lung/Respiratory Tract HI Across All Media	0.015

TABLE A-9.2f-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	---	---	---	---	Liver	0.00099	---	0.00011	0.0011
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.060	---	---	0.060
			Arsenic	---	---	---	---	Skin	0.16	---	0.0052	0.16
			Cadmium	---	---	---	---	Kidney	0.040	---	0.0018	0.042
			Chromium Total	---	---	---	---	None observed	0.23	---	---	0.23
			Cobalt	---	---	---	---	Thyroid	0.14	---	---	0.14
			Iron	---	---	---	---	Gastrointestinal	0.14	---	---	0.14
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.028	---	---	0.028
			Mercury	---	---	---	---	Nervous system	0.015	---	---	0.015
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.10	---	---	0.10
			Zinc	---	---	---	---	Blood	0.034	---	---	0.034
			Chemical Total	---	---	---	---		0.93	---	0.0071	0.94
		Exposure Point Total					---					0.94
		Air at Risk Area F	Dieldrin	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00034	---	0.00034
			Cadmium	---	---	---	---	Kidney	---	0.00043	---	0.00043
			Chromium Total	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073

TABLE A-9.2f-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	---	---	---	Respiratory tract	---	0.00073	---	0.00073
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0042	---	0.0042
			Mercury	---	---	---	---	Nervous system	---	0.00000085	---	0.00000085
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.013	---	0.013
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.021	---	0.021
		Exposure Point Total					---					0.021
	Aggregate Soil Total						---					0.96
Soil Total							---					0.96

Total Risk Across All Media	---
Total Hazard Across All Media	0.96
Total Liver HI Across All Media	0.0011
Total Nervous System HI Across All Media	0.11
Total Skin HI Across All Media	0.16
Total Kidney HI Across All Media	0.042
Total Thyroid HI Across All Media	0.14
Total Gastrointestinal HI Across All Media	0.14
Total Hair HI Across All Media	0.095
Total Blood HI Across All Media	0.034
Total Developmental HI Across All Media	0.00034
Total Cardiovascular HI Across All Media	0.00034
Total Lung/Respiratory Tract HI Across All Media	0.015

TABLE A-9.2f-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	3.1E-08	---	3.5E-09	3.5E-08	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.4E-06	---	3.5E-07	2.7E-06	---	---	---	---	---
			Benzo(a)pyrene	2.0E-05	---	2.9E-06	2.3E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-06	---	3.9E-07	3.1E-06	---	---	---	---	---
			Benzo(k)fluoranthene	2.6E-07	---	3.8E-08	3.0E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.8E-06	---	7.0E-07	5.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.6E-07	1.2E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	2.8E-06	---	9.3E-08	2.8E-06	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	1.1E-04	---	---	1.1E-04	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	1.4E-04	---	4.6E-06	1.5E-04		---	---	---	---
		Exposure Point Total					1.5E-04					---
		Air at Risk Area F	Dieldrin	---	3.2E-12	---	3.2E-12	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	7.1E-11	---	7.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	5.9E-10	---	5.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.0E-11	---	8.0E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.2E-11	---	3.2E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Arsenic	---	2.8E-09	---	2.8E-09	---	---	---	---	---
			Cadmium	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Chromium Total	---	3.6E-06	---	3.6E-06	---	---	---	---	---

TABLE A-9.2f-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	5.1E-09	---	5.1E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.0E-07	---	1.0E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	3.7E-06	---	3.7E-06		---	---	---	---
		Exposure Point Total					3.7E-06					---
	Aggregate Soil Total						1.5E-04					---
Soil Total							1.5E-04					---

Total Risk Across All Media: 1.5E-04

Total Hazard Across All Media: ---

TABLE A-9.2f-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Dieldrin	1.8E-10	---	5.9E-11	2.4E-10	Liver	0.000016	---	0.0000052	0.000021
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.7E-09	---	7.3E-10	2.4E-09	---	---	---	---	---
			Benzo(a)pyrene	1.4E-08	---	6.1E-09	2.0E-08	---	---	---	---	---
			Benzo(b)fluoranthene	1.9E-09	---	8.3E-10	2.8E-09	---	---	---	---	---
			Benzo(k)fluoranthene	1.9E-10	---	8.0E-11	2.6E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.4E-09	---	1.5E-09	4.9E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	7.6E-10	---	3.3E-10	1.1E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00095	---	---	0.00095
			Arsenic	1.6E-08	---	1.6E-09	1.8E-08	Skin	0.0025	---	0.00025	0.0027
			Cadmium	---	---	---	---	Kidney	0.00064	---	0.000084	0.00072
			Chromium Total	7.7E-08	---	---	7.7E-08	None observed	0.0036	---	---	0.0036
			Cobalt	---	---	---	---	Thyroid	0.0022	---	---	0.0022
			Iron	---	---	---	---	Gastrointestinal	0.0022	---	---	0.0022
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00044	---	---	0.00044
			Mercury	---	---	---	---	Nervous system	0.00024	---	---	0.00024
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0015	---	---	0.0015
			Zinc	---	---	---	---	Blood	0.00054	---	---	0.00054
			Chemical Total	1.2E-07	---	1.1E-08	1.3E-07		0.015	---	0.00033	0.015
		Exposure Point Total					1.3E-07					0.015
		Air at Risk Area F	Dieldrin	---	8.7E-12	---	8.7E-12	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.3E-11	---	4.3E-11	---	---	---	---	---
			Benzo(a)pyrene	---	3.6E-10	---	3.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.9E-11	---	4.9E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	9.5E-11	---	9.5E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.9E-11	---	1.9E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.032	---	0.032
			Arsenic	---	7.7E-09	---	7.7E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0083	---	0.0083
			Cadmium	---	2.8E-09	---	2.8E-09	Kidney	---	0.011	---	0.011
			Chromium Total	---	2.2E-06	---	2.2E-06	Respiratory tract	---	0.018	---	0.018

TABLE A-9.2f-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area F	Cobalt	---	1.4E-08	---	1.4E-08	Respiratory tract	---	0.018	---	0.018
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.10	---	0.10
			Mercury	---	---	---	---	Nervous system	---	0.000021	---	0.000021
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	2.7E-07	---	2.7E-07	Larynx	---	0.023	---	0.023
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	2.5E-06	---	2.5E-06		---	0.21	---	0.21
		Exposure Point Total					2.5E-06					0.21
	Aggregate Soil Total						2.6E-06					0.23
Soil Total							2.6E-06					0.23

Total Risk Across All Media	2.6E-06
Total Hazard Across All Media	0.23
Total Liver HI Across All Media	0.000021
Total Nervous System HI Across All Media	0.15
Total Skin HI Across All Media	0.011
Total Kidney HI Across All Media	0.011
Total Thyroid HI Across All Media	0.0022
Total Gastrointestinal HI Across All Media	0.0022
Total Hair HI Across All Media	0.0015
Total Blood HI Across All Media	0.00054
Total Developmental HI Across All Media	0.0083
Total Cardiovascular HI Across All Media	0.0083
Total Lung/Respiratory Tract HI Across All Media	0.068

TABLE A-9.1g-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	2.1E-07	---	1.8E-07	3.8E-07	---	---	---	---	---
			Benzo(a)pyrene	2.3E-06	---	2.0E-06	4.4E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.4E-07	---	2.0E-07	4.4E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	6.4E-07	---	5.5E-07	1.2E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.5E-07	---	1.2E-07	2.7E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.011	---	---	0.011
			Antimony	---	---	---	---	Blood	0.10	---	---	0.10
			Arsenic	1.1E-05	---	2.1E-06	1.3E-05	Skin	0.068	---	0.013	0.081
			Cadmium	---	---	---	---	Kidney	0.022	---	0.0058	0.028
			Chromium Total	1.2E-05	---	---	1.2E-05	None observed	0.022	---	---	0.022
			Cobalt	---	---	---	---	Thyroid	0.045	---	---	0.045
			Iron	---	---	---	---	Gastrointestinal	0.019	---	---	0.019
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0030	---	---	0.0030
			Mercury	---	---	---	---	Nervous system	0.0073	---	---	0.0073
			Nickel	---	---	---	---	Body weight	0.021	---	---	0.021
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.011	---	---	0.011
			Zinc	---	---	---	---	Blood	0.045	---	---	0.045
			Chemical Total	2.6E-05	---	5.2E-06	3.1E-05		0.37	---	0.019	0.39
		Exposure Point Total					3.1E-05					0.39
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	5.2E-12	---	5.2E-12	---	---	---	---	---
			Benzo(a)pyrene	---	5.9E-11	---	5.9E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.0E-12	---	6.0E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.8E-11	---	1.8E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.7E-12	---	3.7E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00036	---	0.00036
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	5.2E-09	---	5.2E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00023	---	0.00023
			Cadmium	---	2.4E-09	---	2.4E-09	Kidney	---	0.00037	---	0.00037
			Chromium Total	---	3.3E-07	---	3.3E-07	Respiratory tract	---	0.00011	---	0.00011
			Cobalt	---	7.2E-09	---	7.2E-09	Respiratory tract	---	0.00038	---	0.00038

TABLE A-9.1g-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area G	Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00070	---	0.00070
			Mercury	---	---	---	---	Nervous system	---	0.00000066	---	0.00000066
			Nickel	---	6.6E-09	---	6.6E-09	Respiratory tract	---	0.00079	---	0.00079
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	4.8E-08	---	4.8E-08	Larynx	---	0.0023	---	0.0023
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	4.0E-07	---	4.0E-07		---	0.0052	---	0.0052
		Exposure Point Total					4.0E-07					0.0052
	Surface Soil Total						3.2E-05					0.40
Soil Total							3.2E-05					0.40

Total Risk Across All Media	3.2E-05
Total Hazard Across All Media	0.40
Total Nervous System HI Across All Media	0.022
Total Blood HI Across All Media	0.14
Total Skin HI Across All Media	0.081
Total Kidney HI Across All Media	0.028
Total Thyroid HI Across All Media	0.045
Total Gastrointestinal HI Across All Media	0.019
Total Body Weight HI Across All Media	0.021
Total Hair HI Across All Media	0.011
Total Developmental HI Across All Media	0.00023
Total Cardiovascular HI Across All Media	0.00023
Total Lung/Respiratory System HI Across All Media	0.0038

TABLE A-9.2g-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	1.7E-07	---	1.4E-07	3.1E-07	---	---	---	---	---
			Benzo(a)pyrene	1.8E-06	---	1.5E-06	3.3E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.5E-07	---	2.1E-07	4.6E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.0E-07	---	4.3E-07	9.2E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	9.7E-08	---	8.3E-08	1.8E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0086	---	---	0.0086
			Antimony	---	---	---	---	Blood	0.10	---	---	0.10
			Arsenic	6.9E-06	---	1.4E-06	8.2E-06	Skin	0.043	---	0.0085	0.051
			Cadmium	---	---	---	---	Kidney	0.035	---	0.0093	0.045
			Chromium Total	6.9E-06	---	---	6.9E-06	None observed	0.013	---	---	0.013
			Cobalt	---	---	---	---	Thyroid	0.031	---	---	0.031
			Iron	---	---	---	---	Gastrointestinal	0.027	---	---	0.027
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0039	---	---	0.0039
			Mercury	---	---	---	---	Nervous system	0.012	---	---	0.012
			Nickel	---	---	---	---	Body weight	0.013	---	---	0.013
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0068	---	---	0.0068
			Zinc	---	---	---	---	Blood	0.047	---	---	0.047
			Chemical Total	1.7E-05	---	3.8E-06	2.0E-05		0.34	---	0.018	0.36
		Exposure Point Total					2.0E-05					0.36
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	4.2E-12	---	4.2E-12	---	---	---	---	---
			Benzo(a)pyrene	---	4.5E-11	---	4.5E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.3E-12	---	6.3E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.5E-12	---	2.5E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00029	---	0.00029
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	3.3E-09	---	3.3E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00014	---	0.00014
			Cadmium	---	3.8E-09	---	3.8E-09	Kidney	---	0.00059	---	0.00059
			Chromium Total	---	1.9E-07	---	1.9E-07	Respiratory tract	---	0.000065	---	0.000065
			Cobalt	---	5.1E-09	---	5.1E-09	Respiratory tract	---	0.00026	---	0.00026

TABLE A-9.2g-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area G	Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00093	---	0.00093
			Mercury	---	---	---	---	Nervous system	---	0.0000011	---	0.0000011
			Nickel	---	4.0E-09	---	4.0E-09	Respiratory tract	---	0.00047	---	0.00047
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.1E-08	---	3.1E-08	Larynx	---	0.0015	---	0.0015
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	2.4E-07	---	2.4E-07		---	0.0042	---	0.0042
		Exposure Point Total					2.4E-07					0.0042
	Aggregate Soil Total						2.1E-05					0.36
Soil Total							2.1E-05					0.36

Total Risk Across All Media	2.1E-05
Total Hazard Across All Media	0.36
Total Nervous System HI Across All Media	0.026
Total Blood HI Across All Media	0.15
Total Skin HI Across All Media	0.051
Total Kidney HI Across All Media	0.045
Total Thyroid HI Across All Media	0.031
Total Gastrointestinal HI Across All Media	0.027
Total Body Weight HI Across All Media	0.013
Total Hair HI Across All Media	0.0068
Total Developmental HI Across All Media	0.00014
Total Cardiovascular HI Across All Media	0.00014
Total Lung/Respiratory System HI Across All Media	0.0024

TABLE A-9.2g-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	1.1E-08	---	4.5E-09	1.6E-08	---	---	---	---	---
			Benzo(a)pyrene	1.2E-07	---	4.8E-08	1.7E-07	---	---	---	---	---
			Benzo(b)fluoranthene	1.7E-08	---	6.6E-09	2.4E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.4E-08	---	1.3E-08	4.7E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.7E-09	---	2.6E-09	9.2E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.015	---	---	0.015
			Antimony	---	---	---	---	Blood	0.17	---	---	0.17
			Arsenic	4.7E-07	---	4.2E-08	5.1E-07	Skin	0.073	---	0.0066	0.080
			Cadmium	---	---	---	---	Kidney	0.061	---	0.0073	0.068
			Chromium Total	4.7E-07	---	---	4.7E-07	None observed	0.000066	---	---	0.000066
			Cobalt	---	---	---	---	Thyroid	0.054	---	---	0.054
			Iron	---	---	---	---	Gastrointestinal	0.047	---	---	0.047
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0068	---	---	0.0068
			Mercury	---	---	---	---	Nervous system	0.021	---	---	0.021
			Nickel	---	---	---	---	Body weight	0.022	---	---	0.022
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.012	---	---	0.012
			Zinc	---	---	---	---	Blood	0.081	---	---	0.081
			Chemical Total	1.1E-06	---	1.2E-07	1.3E-06		0.56	---	0.014	0.58
		Exposure Point Total					1.3E-06					0.58
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	8.8E-11	---	8.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	9.4E-10	---	9.4E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.1E-11	---	5.1E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.15	---	0.15
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	6.9E-08	---	6.9E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.075	---	0.075
			Cadmium	---	7.9E-08	---	7.9E-08	Kidney	---	0.31	---	0.31
			Chromium Total	---	4.0E-06	---	4.0E-06	Respiratory tract	---	0.034	---	0.034
			Cobalt	---	1.1E-07	---	1.1E-07	Respiratory tract	---	0.14	---	0.14

TABLE A-9.2g-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area G	Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.48	---	0.48
			Mercury	---	---	---	---	Nervous system	---	0.00058	---	0.00058
			Nickel	---	8.2E-08	---	8.2E-08	Respiratory tract	---	0.25	---	0.25
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	6.4E-07	---	6.4E-07	Larynx	---	0.053	---	0.053
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	5.0E-06	---	5.0E-06		---	1.5	---	1.5
		Exposure Point Total					5.0E-06					1.5
	Aggregate Soil Total						6.3E-06					2.1
Soil Total							6.3E-06					2.1

Total Risk Across All Media	6.3E-06
Total Hazard Across All Media	2.1
Total Nervous System HI Across All Media	0.75
Total Blood HI Across All Media	0.25
Total Skin HI Across All Media	0.15
Total Kidney HI Across All Media	0.38
Total Thyroid HI Across All Media	0.054
Total Gastrointestinal HI Across All Media	0.047
Total Body Weight HI Across All Media	0.022
Total Hair HI Across All Media	0.012
Total Developmental HI Across All Media	0.075
Total Cardiovascular HI Across All Media	0.075
Total Lung/Respiratory System HI Across All Media	0.55

TABLE A-9.1g-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	3.3E-08	---	5.6E-09	3.8E-08	---	---	---	---	---
			Benzo(a)pyrene	3.7E-07	---	6.4E-08	4.3E-07	---	---	---	---	---
			Benzo(b)fluoranthene	3.7E-08	---	6.4E-09	4.4E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.0E-07	---	1.7E-08	1.2E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.3E-08	---	3.9E-09	2.7E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0046	---	---	0.0046
			Antimony	---	---	---	---	Blood	0.044	---	---	0.044
			Arsenic	1.7E-06	---	6.8E-08	1.8E-06	Skin	0.030	---	0.0012	0.031
			Cadmium	---	---	---	---	Kidney	0.0097	---	0.00051	0.010
			Chromium Total	1.8E-06	---	---	1.8E-06	None observed	0.0095	---	---	0.0095
			Cobalt	---	---	---	---	Thyroid	0.020	---	---	0.020
			Iron	---	---	---	---	Gastrointestinal	0.0082	---	---	0.0082
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0013	---	---	0.0013
			Mercury	---	---	---	---	Nervous system	0.0032	---	---	0.0032
			Nickel	---	---	---	---	Body weight	0.0092	---	---	0.0092
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0046	---	---	0.0046
			Zinc	---	---	---	---	Blood	0.020	---	---	0.020
			Chemical Total	4.1E-06	---	1.6E-07	4.3E-06		0.16	---	0.0017	0.16
		Exposure Point Total					4.3E-06					0.16
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	1.6E-12	---	1.6E-12	---	---	---	---	---
			Benzo(a)pyrene	---	1.9E-11	---	1.9E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.9E-12	---	1.9E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.6E-12	---	5.6E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.2E-12	---	1.2E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00031	---	0.00031
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.6E-09	---	1.6E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00020	---	0.00020
			Cadmium	---	7.5E-10	---	7.5E-10	Kidney	---	0.00033	---	0.00033
			Chromium Total	---	1.0E-07	---	1.0E-07	Respiratory tract	---	0.000095	---	0.000095
			Cobalt	---	2.3E-09	---	2.3E-09	Respiratory tract	---	0.00033	---	0.00033

TABLE A-9.1g-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area G	Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00062	---	0.00062
			Mercury	---	---	---	---	Nervous system	---	0.00000058	---	0.00000058
			Nickel	---	2.1E-09	---	2.1E-09	Respiratory tract	---	0.00069	---	0.00069
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.5E-08	---	1.5E-08	Larynx	---	0.0020	---	0.0020
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.2E-07	---	1.2E-07		---	0.0046	---	0.0046
		Exposure Point Total					1.2E-07					0.0046
	Surface Soil Total						4.4E-06					0.17
Soil Total							4.4E-06					0.17

Total Risk Across All Media	4.4E-06
Total Hazard Across All Media	0.17
Total Nervous System HI Across All Media	0.010
Total Blood HI Across All Media	0.063
Total Skin HI Across All Media	0.031
Total Kidney HI Across All Media	0.011
Total Thyroid HI Across All Media	0.020
Total Gastrointestinal HI Across All Media	0.0082
Total Body Weight HI Across All Media	0.0092
Total Hair HI Across All Media	0.0046
Total Developmental HI Across All Media	0.00020
Total Cardiovascular HI Across All Media	0.00020
Total Lung/Respiratory System HI Across All Media	0.0033

TABLE A-9.2g-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	2.6E-08	---	4.5E-09	3.1E-08	---	---	---	---	---
			Benzo(a)pyrene	2.8E-07	---	4.8E-08	3.3E-07	---	---	---	---	---
			Benzo(b)fluoranthene	3.9E-08	---	6.7E-09	4.6E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	7.8E-08	---	1.3E-08	9.2E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.5E-08	---	2.6E-09	1.8E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0038	---	---	0.0038
			Antimony	---	---	---	---	Blood	0.044	---	---	0.044
			Arsenic	1.1E-06	---	4.3E-08	1.1E-06	Skin	0.019	---	0.00074	0.019
			Cadmium	---	---	---	---	Kidney	0.015	---	0.00082	0.016
			Chromium Total	1.1E-06	---	---	1.1E-06	None observed	0.0056	---	---	0.0056
			Cobalt	---	---	---	---	Thyroid	0.014	---	---	0.014
			Iron	---	---	---	---	Gastrointestinal	0.012	---	---	0.012
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0017	---	---	0.0017
			Mercury	---	---	---	---	Nervous system	0.0055	---	---	0.0055
			Nickel	---	---	---	---	Body weight	0.0056	---	---	0.0056
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0030	---	---	0.0030
			Zinc	---	---	---	---	Blood	0.021	---	---	0.021
			Chemical Total	2.6E-06	---	1.2E-07	2.7E-06		0.15	---	0.0016	0.15
		Exposure Point Total					2.7E-06					0.15
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	1.3E-12	---	1.3E-12	---	---	---	---	---
			Benzo(a)pyrene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.0E-12	---	2.0E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.3E-12	---	4.3E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.7E-13	---	7.7E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00025	---	0.00025
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.0E-09	---	1.0E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00013	---	0.00013
			Cadmium	---	1.2E-09	---	1.2E-09	Kidney	---	0.00052	---	0.00052
			Chromium Total	---	6.1E-08	---	6.1E-08	Respiratory tract	---	0.000057	---	0.000057
			Cobalt	---	1.6E-09	---	1.6E-09	Respiratory tract	---	0.00023	---	0.00023

TABLE A-9.2g-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area G	Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00081	---	0.00081
			Mercury	---	---	---	---	Nervous system	---	0.00000098	---	0.00000098
			Nickel	---	1.2E-09	---	1.2E-09	Respiratory tract	---	0.00042	---	0.00042
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	9.7E-09	---	9.7E-09	Larynx	---	0.0013	---	0.0013
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	7.6E-08	---	7.6E-08		---	0.0037	---	0.0037
		Exposure Point Total					7.6E-08					0.0037
	Aggregate Soil Total						2.8E-06					0.15
Soil Total							2.8E-06					0.15

Total Risk Across All Media	2.8E-06
Total Hazard Across All Media	0.15
Total Nervous System HI Across All Media	0.012
Total Blood HI Across All Media	0.064
Total Skin HI Across All Media	0.020
Total Kidney HI Across All Media	0.017
Total Thyroid HI Across All Media	0.014
Total Gastrointestinal HI Across All Media	0.012
Total Body Weight HI Across All Media	0.0056
Total Hair HI Across All Media	0.0030
Total Developmental HI Across All Media	0.00013
Total Cardiovascular HI Across All Media	0.00013
Total Lung/Respiratory System HI Across All Media	0.0021

TABLE A-9.2g-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	PAHs									
			Benzo(a)anthracene	7.0E-10	---	3.0E-10	9.9E-10	---	---	---	---	---
			Benzo(a)pyrene	7.4E-09	---	3.2E-09	1.1E-08	---	---	---	---	---
			Benzo(b)fluoranthene	1.0E-09	---	4.4E-10	1.5E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.1E-09	---	8.9E-10	3.0E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.0E-10	---	1.7E-10	5.8E-10	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00089	---	---	0.00089
			Antimony	---	---	---	---	Blood	0.010	---	---	0.010
			Arsenic	2.9E-08	---	2.8E-09	3.1E-08	Skin	0.0044	---	0.00044	0.0049
			Cadmium	---	---	---	---	Kidney	0.0037	---	0.00048	0.0042
			Chromium Total	2.9E-08	---	---	2.9E-08	None observed	0.0013	---	---	0.0013
			Cobalt	---	---	---	---	Thyroid	0.0033	---	---	0.0033
			Iron	---	---	---	---	Gastrointestinal	0.0028	---	---	0.0028
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00041	---	---	0.00041
			Mercury	---	---	---	---	Nervous system	0.0013	---	---	0.0013
			Nickel	---	---	---	---	Body weight	0.0013	---	---	0.0013
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.001	---	---	0.001
			Zinc	---	---	---	---	Blood	0.0049	---	---	0.0049
			Chemical Total	6.9E-08	---	7.8E-09	7.7E-08		0.035	---	0.00092	0.036
		Exposure Point Total					7.7E-08					0.036
		Air at Risk Area G	PAHs									
			Benzo(a)anthracene	---	1.8E-11	---	1.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.6E-11	---	2.6E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	5.7E-11	---	5.7E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.0E-11	---	1.0E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.030	---	0.030
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.4E-08	---	1.4E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.015	---	0.015
			Cadmium	---	1.6E-08	---	1.6E-08	Kidney	---	0.062	---	0.062
			Chromium Total	---	8.1E-07	---	8.1E-07	Respiratory tract	---	0.0067	---	0.0067
			Cobalt	---	2.1E-08	---	2.1E-08	Respiratory tract	---	0.028	---	0.028

TABLE A-9.2g-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area G	Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.10	---	0.10
			Mercury	---	---	---	---	Nervous system	---	0.00012	---	0.00012
			Nickel	---	1.6E-08	---	1.6E-08	Respiratory tract	---	0.049	---	0.049
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.3E-07	---	1.3E-07	Larynx	---	0.0107	---	0.0107
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.0E-06	---	1.0E-06		---	0.30	---	0.30
		Exposure Point Total					1.0E-06					0.30
	Aggregate Soil Total						1.1E-06					0.33
Soil Total							1.1E-06					0.33

Total Risk Across All Media	1.1E-06
Total Hazard Across All Media	0.33
Total Nervous System HI Across All Media	0.14
Total Blood HI Across All Media	0.015
Total Skin HI Across All Media	0.020
Total Kidney HI Across All Media	0.066
Total Thyroid HI Across All Media	0.0033
Total Gastrointestinal HI Across All Media	0.0028
Total Body Weight HI Across All Media	0.0013
Total Hair HI Across All Media	0.00070
Total Developmental HI Across All Media	0.015
Total Cardiovascular HI Across All Media	0.015
Total Lung/Respiratory System HI Across All Media	0.11

TABLE A-9.1h-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	7.2E-07	---	6.1E-07	1.3E-06	---	---	---	---	---
			Benzo(a)pyrene	7.7E-06	---	6.6E-06	1.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.5E-07	---	7.3E-07	1.6E-06	---	---	---	---	---
			Benzo(k)fluoranthene	8.9E-08	---	7.6E-08	1.7E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.5E-06	---	2.1E-06	4.6E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.0E-07	---	5.2E-07	1.1E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0080	---	---	0.0080
			Arsenic	2.0E-06	---	3.9E-07	2.4E-06	Skin	0.012	---	0.0025	0.015
			Chromium Total	2.7E-06	---	---	2.7E-06	None observed	0.0051	---	---	0.0051
			Cobalt	---	---	---	---	Thyroid	0.018	---	---	0.018
			Iron	---	---	---	---	Gastrointestinal	0.018	---	---	0.018
			Manganese	---	---	---	---	Nervous system	0.0043	---	---	0.0043
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0090	---	---	0.0090
			Chemical Total	1.7E-05	---	1.1E-05	2.8E-05		0.075	---	0.0025	0.077
		Exposure Point Total					2.8E-05					0.077
		Air at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.8E-11	---	1.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.2E-11	---	2.2E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-11	---	2.3E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.9E-11	---	6.9E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00027	---	0.00027
			Arsenic	---	9.6E-10	---	9.6E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000042	---	0.000042
			Chromium Total	---	7.8E-08	---	7.8E-08	Respiratory tract	---	0.000026	---	0.000026
			Cobalt	---	2.9E-09	---	2.9E-09	Respiratory tract	---	0.00015	---	0.00015
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0010	---	0.0010
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	4.1E-08	---	4.1E-08	Larynx	---	0.0019	---	0.0019

TABLE A-9.1h-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area H	Chemical Total	---	1.2E-07	---	1.2E-07		---	0.0034	---	0.0034
		Exposure Point Total					1.2E-07					0.0034
	Surface Soil Total						2.8E-05					0.081
Soil Total							2.8E-05					0.081

Total Risk Across All Media	2.8E-05
Total Hazard Across All Media	0.081
Total Nervous System HI Across All Media	0.014
Total Skin HI Across All Media	0.015
Total Thyroid HI Across All Media	0.018
Total Gastrointestinal HI Across All Media	0.018
Total Hair HI Across All Media	0.0090
Total Developmental HI Across All Media	0.000042
Total Cardiovascular HI Across All Media	0.000042
Total Lung/Respiratory Tract HI Across All Media	0.0022

TABLE A-9.2h-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.3E-06	---	1.1E-06	2.5E-06	---	---	---	---	---
			Benzo(a)pyrene	1.4E-05	---	1.2E-05	2.6E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.6E-06	---	1.3E-06	2.9E-06	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	1.7E-07	---	1.4E-07	3.1E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.7E-06	---	3.2E-06	6.9E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.8E-07	---	5.9E-07	1.3E-06	---	---	---	---	---
			Tetrachloroethene	1.9E-10	---	---	1.9E-10	Liver	0.000000098	---	---	0.000000098
			Trichloroethene	4.1E-12	---	---	4.1E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0076	---	---	0.0076
			Arsenic	7.3E-06	---	1.4E-06	8.8E-06	Skin	0.045	---	0.0090	0.055
			Barium	---	---	---	---	Kidney	0.0094	---	---	0.0094
			Cadmium	---	---	---	---	Kidney	0.0048	---	0.0013	0.0060
			Chromium Total	3.0E-06	---	---	3.0E-06	None observed	0.0056	---	---	0.0056
			Cobalt	---	---	---	---	Thyroid	0.021	---	---	0.021
			Iron	---	---	---	---	Gastrointestinal	0.019	---	---	0.019
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0040	---	---	0.0040
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.010	---	---	0.010
			Zinc	---	---	---	---	Blood	0.029	---	---	0.029
			Chemical Total	3.2E-05		2.0E-05	5.1E-05		0.16		0.010	0.17
		Exposure Point Total					5.1E-05					0.17
		Air at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	3.4E-11	---	3.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	3.5E-10	---	3.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.0E-11	---	4.0E-11	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.2E-11	---	4.2E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.7E-11	---	1.7E-11	---	---	---	---	---
			Tetrachloroethene	---	1.2E-11	---	1.2E-11	Nervous system	---	0.000000022	---	0.000000022
			Trichloroethene	---	8.8E-12	---	8.8E-12	CNS	---	0.0000012	---	0.0000012
			Metals									

TABLE A-9.2h-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area H	Aluminum	---	---	---	---	Nervous system	---	0.00025	---	0.00025
			Arsenic	---	3.5E-09	---	3.5E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00015	---	0.00015
			Barium	---	---	---	---	Developmental	---	0.00063	---	0.00063
			Cadmium	---	5.1E-10	---	5.1E-10	Kidney	---	0.000080	---	0.000080
			Chromium Total	---	8.5E-08	---	8.5E-08	Respiratory tract	---	0.000028	---	0.000028
			Cobalt	---	3.5E-09	---	3.5E-09	Respiratory tract	---	0.00018	---	0.00018
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00095	---	0.00095
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	4.7E-08	---	4.7E-08	Larynx	---	0.0022	---	0.0022
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.4E-07		1.4E-07			0.0045		0.0045
		Exposure Point Total					1.4E-07					0.0045
	Aggregate Soil Total						5.1E-05					0.17
Soil Total							5.1E-05					0.17

Total Risk Across All Media	5.1E-05
Total Hazard Across All Media	0.17
Total Liver HI Across All Media	0.000000098
Total Nervous System HI Across All Media	0.013
Total Skin HI Across All Media	0.055
Total Kidney HI Across All Media	0.016
Total Thyroid HI Across All Media	0.021
Total Gastrointestinal HI Across All Media	0.019
Total Hair HI Across All Media	0.010
Total Blood HI Across All Media	0.029
Total Developmental HI Across All Media	0.00079
Total Cardiovascular HI Across All Media	0.00015
Total Lung/Respiratory Tract HI Across All Media	0.0026

TABLE A-9.2h-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	9.1E-08	---	3.6E-08	1.3E-07	---	---	---	---	---
			Benzo(a)pyrene	9.5E-07	---	3.7E-07	1.3E-06	---	---	---	---	---
			Benzo(b)fluoranthene	1.1E-07	---	4.2E-08	1.5E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	1.1E-08	---	4.4E-09	1.6E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.6E-07	---	1.0E-07	3.6E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.7E-08	---	1.8E-08	6.5E-08	---	---	---	---	---
			Tetrachloroethene	1.3E-11	---	---	1.3E-11	Liver	0.00000017	---	---	0.00000017
			Trichloroethene	2.8E-13	---	---	2.8E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.013	---	---	0.013
			Arsenic	5.0E-07	---	4.5E-08	5.5E-07	Skin	0.078	---	0.0070	0.085
			Barium	---	---	---	---	Kidney	0.016	---	---	0.016
			Cadmium	---	---	---	---	Kidney	0.0082	---	0.0010	0.0092
			Chromium Total	2.1E-07	---	---	2.1E-07	None observed	0.0097	---	---	0.0097
			Cobalt	---	---	---	---	Thyroid	0.037	---	---	0.037
			Iron	---	---	---	---	Gastrointestinal	0.033	---	---	0.033
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0069	---	---	0.0069
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.018	---	---	0.018
			Zinc	---	---	---	---	Blood	0.049	---	---	0.049
			Chemical Total	2.2E-06		6.1E-07	2.8E-06		0.27		0.0080	0.28
		Exposure Point Total					2.8E-06					0.28
		Air at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	7.0E-10	---	7.0E-10	---	---	---	---	---
			Benzo(a)pyrene	---	7.2E-09	---	7.2E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.3E-10	---	8.3E-10	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	8.7E-10	---	8.7E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.1E-09	---	2.1E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.6E-10	---	3.6E-10	---	---	---	---	---
			Tetrachloroethene	---	2.6E-13	---	2.6E-13	Nervous system	---	0.000000011	---	0.000000011
			Trichloroethene	---	1.8E-13	---	1.8E-13	CNS	---	0.00000064	---	0.00000064
			Metals									

TABLE A-9.2h-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area H	Aluminum	---	---	---	---	Nervous system	---	0.13	---	0.13
			Arsenic	---	7.3E-08	---	7.3E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.079	---	0.079
			Barium	---	---	---	---	Developmental	---	0.33	---	0.33
			Cadmium	---	1.1E-08	---	1.1E-08	Kidney	---	0.042	---	0.042
			Chromium Total	---	1.8E-06	---	1.8E-06	Respiratory tract	---	0.015	---	0.015
			Cobalt	---	7.2E-08	---	7.2E-08	Respiratory tract	---	0.094	---	0.094
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.49	---	0.49
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	9.7E-07	---	9.7E-07	Larynx	---	0.081	---	0.081
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	2.9E-06	---	2.9E-06		---	1.3	---	1.3
		Exposure Point Total					2.9E-06					1.3
	Aggregate Soil Total						5.7E-06					1.5
Soil Total							5.7E-06					1.5

Total Risk Across All Media	5.7E-06
Total Hazard Across All Media	1.5
Total Liver HI Across All Media	0.00000017
Total Nervous System HI Across All Media	0.72
Total Skin HI Across All Media	0.16
Total Kidney HI Across All Media	0.067
Total Thyroid HI Across All Media	0.037
Total Gastrointestinal HI Across All Media	0.033
Total Hair HI Across All Media	0.018
Total Blood HI Across All Media	0.049
Total Developmental HI Across All Media	0.41
Total Cardiovascular HI Across All Media	0.079
Total Lung/Respiratory Tract HI Across All Media	0.27

TABLE A-9.1h-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.1E-07	---	1.9E-08	1.3E-07	---	---	---	---	---
			Benzo(a)pyrene	1.2E-06	---	2.1E-07	1.4E-06	---	---	---	---	---
			Benzo(b)fluoranthene	1.3E-07	---	2.3E-08	1.6E-07	---	---	---	---	---
			Benzo(k)fluoranthene	1.4E-08	---	2.4E-09	1.6E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.9E-07	---	6.7E-08	4.6E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	9.5E-08	---	1.6E-08	1.1E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0035	---	---	0.0035
			Arsenic	3.1E-07	---	1.2E-08	3.3E-07	Skin	0.0054	---	0.00022	0.0056
			Chromium Total	4.3E-07	---	---	4.3E-07	None observed	0.0022	---	---	0.0022
			Cobalt	---	---	---	---	Thyroid	0.0079	---	---	0.0079
			Iron	---	---	---	---	Gastrointestinal	0.0078	---	---	0.0078
			Manganese	---	---	---	---	Nervous system	0.0019	---	---	0.0019
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0039	---	---	0.0039
			Chemical Total	2.7E-06	---	3.5E-07	3.1E-06		0.033	---	0.00022	0.033
		Exposure Point Total					3.1E-06					0.033
		Air at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	5.7E-12	---	5.7E-12	---	---	---	---	---
			Benzo(a)pyrene	---	6.1E-11	---	6.1E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.8E-12	---	6.8E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.1E-12	---	7.1E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.2E-11	---	2.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.8E-12	---	4.8E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00024	---	0.00024
			Arsenic	---	3.0E-10	---	3.0E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000036	---	0.000036
			Chromium Total	---	2.4E-08	---	2.4E-08	Respiratory tract	---	0.000023	---	0.000023
			Cobalt	---	9.2E-10	---	9.2E-10	Respiratory tract	---	0.00013	---	0.00013
			Iron	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00089	---	0.00089
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.3E-08	---	1.3E-08	Larynx	---	0.0017	---	0.0017

TABLE A-9.1h-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area H	Chemical Total	---	3.9E-08	---	3.9E-08		---	0.0030	---	0.0030
		Exposure Point Total					3.9E-08					0.0030
	Surface Soil Total						3.1E-06					0.036
Soil Total							3.1E-06					0.036

Total Risk Across All Media	3.1E-06
Total Hazard Across All Media	0.036
Total Nervous System HI Across All Media	0.0066
Total Skin HI Across All Media	0.0057
Total Thyroid HI Across All Media	0.0079
Total Gastrointestinal HI Across All Media	0.0078
Total Hair HI Across All Media	0.0039
Total Developmental HI Across All Media	0.000036
Total Cardiovascular HI Across All Media	0.000036
Total Lung/Respiratory Tract HI Across All Media	0.0019

TABLE A-9.2h-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.1E-07	---	3.6E-08	2.5E-07	---	---	---	---	---
			Benzo(a)pyrene	2.2E-06	---	3.7E-07	2.5E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.5E-07	---	4.2E-08	2.9E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	2.6E-08	---	4.5E-09	3.1E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.9E-07	---	1.0E-07	6.9E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-07	---	1.9E-08	1.3E-07	---	---	---	---	---
			Tetrachloroethene	3.0E-11	---	---	3.0E-11	Liver	0.000000043	---	---	0.000000043
			Trichloroethene	6.5E-13	---	---	6.5E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0033	---	---	0.0033
			Arsenic	1.2E-06	---	4.6E-08	1.2E-06	Skin	0.020	---	0.00079	0.021
			Barium	---	---	---	---	Kidney	0.0041	---	---	0.0041
			Cadmium	---	---	---	---	Kidney	0.0021	---	0.00011	0.0022
			Chromium Total	4.8E-07	---	---	4.8E-07	None observed	0.0025	---	---	0.0025
			Cobalt	---	---	---	---	Thyroid	0.0094	---	---	0.0094
			Iron	---	---	---	---	Gastrointestinal	0.0084	---	---	0.0084
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0018	---	---	0.0018
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0045	---	---	0.0045
			Zinc	---	---	---	---	Blood	0.013	---	---	0.013
			Chemical Total	5.0E-06		6.2E-07	5.6E-06		0.069		0.00090	0.070
		Exposure Point Total					5.6E-06					0.070
		Air at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.3E-11	---	1.3E-11	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.3E-11	---	1.3E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.2E-11	---	3.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.5E-12	---	5.5E-12	---	---	---	---	---
			Tetrachloroethene	---	6.5E-12	---	6.5E-12	Nervous system	---	0.000000032	---	0.000000032
			Trichloroethene	---	4.6E-12	---	4.6E-12	CNS	---	0.0000018	---	0.0000018
			Metals									

TABLE A-9.2h-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area H	Aluminum	---	---	---	---	Nervous system	---	0.00022	---	0.00022
			Arsenic	---	1.1E-09	---	1.1E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00013	---	0.00013
			Barium	---	---	---	---	Developmental	---	0.00056	---	0.00056
			Cadmium	---	1.6E-10	---	1.6E-10	Kidney	---	0.000070	---	0.000070
			Chromium Total	---	2.7E-08	---	2.7E-08	Respiratory tract	---	0.000025	---	0.000025
			Cobalt	---	1.1E-09	---	1.1E-09	Respiratory tract	---	0.00016	---	0.00016
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00083	---	0.00083
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.5E-08	---	1.5E-08	Larynx	---	0.0020	---	0.0020
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	4.4E-08		4.4E-08			0.0039		0.0039
		Exposure Point Total					4.4E-08					0.0039
	Aggregate Soil Total						5.6E-06					0.074
Soil Total							5.6E-06					0.074

Total Risk Across All Media	5.6E-06
Total Hazard Across All Media	0.074
Total Liver HI Across All Media	0.000000043
Total Nervous System HI Across All Media	0.0063
Total Skin HI Across All Media	0.021
Total Kidney HI Across All Media	0.0064
Total Thyroid HI Across All Media	0.0094
Total Gastrointestinal HI Across All Media	0.0084
Total Hair HI Across All Media	0.0045
Total Blood HI Across All Media	0.013
Total Developmental HI Across All Media	0.00069
Total Cardiovascular HI Across All Media	0.00013
Total Lung/Respiratory Tract HI Across All Media	0.0023

TABLE A-9.2h-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	5.5E-09	---	2.4E-09	7.9E-09	---	---	---	---	---
			Benzo(a)pyrene	5.7E-08	---	2.5E-08	8.2E-08	---	---	---	---	---
			Benzo(b)fluoranthene	6.5E-09	---	2.8E-09	9.3E-09	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	6.9E-10	---	3.0E-10	9.8E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.5E-08	---	6.6E-09	2.2E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.8E-09	---	1.2E-09	4.1E-09	---	---	---	---	---
			Tetrachloroethene	7.9E-13	---	---	7.9E-13	Liver	0.000000010	---	---	0.000000010
			Trichloroethene	1.7E-14	---	---	1.7E-14	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00079	---	---	0.00079
			Arsenic	3.0E-08	---	3.0E-09	3.3E-08	Skin	0.0047	---	0.00047	0.0052
			Barium	---	---	---	---	Kidney	0.0010	---	---	0.0010
			Cadmium	---	---	---	---	Kidney	0.00050	---	0.000065	0.00056
			Chromium Total	1.3E-08	---	---	1.3E-08	None observed	0.00059	---	---	0.00059
			Cobalt	---	---	---	---	Thyroid	0.0022	---	---	0.0022
			Iron	---	---	---	---	Gastrointestinal	0.0020	---	---	0.0020
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00042	---	---	0.00042
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0011	---	---	0.0011
			Zinc	---	---	---	---	Blood	0.0030	---	---	0.0030
			Chemical Total	1.3E-07		4.1E-08	1.7E-07		0.016		0.00053	0.017
		Exposure Point Total					1.7E-07					0.017
		Air at Risk Area H	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.4E-09	---	1.4E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.3E-10	---	4.3E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.2E-11	---	7.2E-11	---	---	---	---	---
			Tetrachloroethene	---	8.5E-14	---	8.5E-14	Nervous system	---	0.0000000037	---	0.0000000037
			Trichloroethene	---	6.1E-14	---	6.1E-14	CNS	---	0.00000021	---	0.00000021
			Metals									

TABLE A-9.2h-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area H	Aluminum	---	---	---	---	Nervous system	---	0.026	---	0.026
			Arsenic	---	1.5E-08	---	1.5E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.016	---	0.016
			Barium	---	---	---	---	Developmental	---	0.07	---	0.07
			Cadmium	---	2.1E-09	---	2.1E-09	Kidney	---	0.0083	---	0.0083
			Chromium Total	---	3.5E-07	---	3.5E-07	Respiratory tract	---	0.0030	---	0.0030
			Cobalt	---	1.4E-08	---	1.4E-08	Respiratory tract	---	0.019	---	0.019
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.098	---	0.098
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.9E-07	---	1.9E-07	Larynx	---	0.016	---	0.016
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	5.8E-07	---	5.8E-07		---	0.25	---	0.25
		Exposure Point Total					5.8E-07					0.25
	Aggregate Soil Total						7.6E-07					0.27
Soil Total							7.6E-07					0.27

Total Risk Across All Media	7.6E-07
Total Hazard Across All Media	0.27
Total Liver HI Across All Media	0.000000010
Total Nervous System HI Across All Media	0.14
Total Skin HI Across All Media	0.021
Total Kidney HI Across All Media	0.010
Total Thyroid HI Across All Media	0.0022
Total Gastrointestinal HI Across All Media	0.0020
Total Hair HI Across All Media	0.0011
Total Blood HI Across All Media	0.0030
Total Developmental HI Across All Media	0.082
Total Cardiovascular HI Across All Media	0.016
Total Lung/Respiratory Tract HI Across All Media	0.054

TABLE A-9.1i-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area I	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.1E-06	---	9.6E-07	2.1E-06	---	---	---	---	---
			Benzo(a)pyrene	1.1E-05	---	9.4E-06	2.0E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.9E-06	---	1.6E-06	3.5E-06	---	---	---	---	---
			Benzo(k)fluoranthene	5.9E-08	---	5.0E-08	1.1E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.4E-06	---	1.2E-06	2.7E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.8E-07	---	2.4E-07	5.2E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0094	---	---	0.0094
			Arsenic	2.8E-06	---	5.6E-07	3.4E-06	Skin	0.018	---	0.0035	0.021
			Cadmium	---	---	---	---	Kidney	0.027	---	0.0072	0.035
			Chromium Total	2.9E-06	---	---	2.9E-06	None observed	0.0054	---	---	0.0054
			Cobalt	---	---	---	---	Thyroid	0.024	---	---	0.024
			Iron	---	---	---	---	Gastrointestinal	0.013	---	---	0.013
			Mercury	---	---	---	---	Nervous system	0.0073	---	---	0.0073
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0078	---	---	0.0078
			Chemical Total	2.1E-05	---	1.4E-05	3.5E-05		0.11	---	0.011	0.12
		Exposure Point Total					3.5E-05					0.12
		Air at Risk Area I	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	2.8E-11	---	2.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.8E-10	---	2.8E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.9E-11	---	3.9E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.1E-12	---	7.1E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00031	---	0.00031
			Arsenic	---	1.4E-09	---	1.4E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000059	---	0.000059
			Cadmium	---	3.0E-09	---	3.0E-09	Kidney	---	0.00046	---	0.00046
			Chromium Total	---	8.1E-08	---	8.1E-08	Respiratory tract	---	0.000027	---	0.000027

TABLE A-9.1i-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area I	Cobalt	---	3.9E-09	---	3.9E-09	Respiratory tract	---	0.00020	---	0.00020
			Iron	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	Nervous system	---	0.00000066	---	0.00000066
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.6E-08	---	3.6E-08	Larynx	---	0.0017	---	0.0017
			Chemical Total	---	1.3E-07	---	1.3E-07		---	0.0028	---	0.0028
		Exposure Point Total					1.3E-07					0.0028
	Surface Soil Total						3.6E-05					0.12
Soil Total							3.6E-05					0.12

Total Risk Across All Media	3.6E-05
Total Hazard Across All Media	0.12
Total Nervous System HI Across All Media	0.017
Total Skin HI Across All Media	0.021
Total Kidney HI Across All Media	0.035
Total Thyroid HI Across All Media	0.024
Total Gastrointestinal HI Across All Media	0.013
Total Hair HI Across All Media	0.0078
Total Developmental HI Across All Media	0.000059
Total Cardiovascular HI Across All Media	0.000059
Total Lung/Respiratory HI Across All Media	0.0020

TABLE A-9.2i-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Benzene	9.6E-11	---	---	9.6E-11	Blood	0.0000012	---	---	0.0000012
			Dibenzofuran	---	---	---	---	Body and organ weight	0.013	---	---	0.013
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.4E-05	---	1.2E-05	2.5E-05	---	---	---	---	---
			Benzo(a)pyrene	1.2E-04	---	9.9E-05	2.1E-04	---	---	---	---	---
			Benzo(b)fluoranthene	4.8E-06	---	4.1E-06	8.8E-06	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	3.1E-07	---	2.7E-07	5.8E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Chrysene	1.5E-07	---	1.3E-07	2.8E-07	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-05	---	2.5E-05	5.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	9.7E-06	---	8.3E-06	1.8E-05	---	---	---	---	---
			Naphthalene	---	---	---	---	Body weight	0.000013	---	---	0.000013
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0066	---	---	0.0066
			Arsenic	5.2E-06	---	1.0E-06	6.2E-06	Skin	0.032	---	0.0064	0.039
			Cadmium	---	---	---	---	Kidney	0.014	---	0.0037	0.018
			Chromium Total	2.1E-06	---	---	2.1E-06	None observed	0.000012	---	---	0.000012
			Cobalt	---	---	---	---	Thyroid	0.022	---	---	0.022
			Iron	---	---	---	---	Gastrointestinal	0.017	---	---	0.017
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0027	---	---	0.0027
			Mercury	---	---	---	---	Nervous system	0.0027	---	---	0.0027
			Silver	---	---	---	---	Skin	0.017	---	---	0.017
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.016	---	---	0.016
			Zinc	---	---	---	---	Blood	0.0042	---	---	0.0042
			Chemical Total	1.8E-04	---	1.5E-04	3.3E-04		0.15	---	0.010	0.16
		Exposure Point Total					3.3E-04					0.16
		Air at Risk Area I	Benzene	---	8.9E-11	---	8.9E-11	Blood	---	0.0000011	---	0.0000011
			Dibenzofuran	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	3.4E-10	---	3.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.9E-09	---	2.9E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---

TABLE A-9.2i-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area I	Chrysene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	7.9E-10	---	7.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Naphthalene	---	1.8E-08	---	1.8E-08	Respiratory tract	---	0.00048	---	0.00048
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00022	---	0.00022
			Arsenic	---	2.5E-09	---	2.5E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00011	---	0.00011
			Cadmium	---	1.5E-09	---	1.5E-09	Kidney	---	0.00023	---	0.00023
			Chromium Total	---	5.9E-08	---	5.9E-08	Respiratory tract	---	0.000020	---	0.000020
			Cobalt	---	3.5E-09	---	3.5E-09	Respiratory tract	---	0.00018	---	0.00018
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00063	---	0.00063
			Mercury	---	---	---	---	Nervous system	---	0.00000024	---	0.00000024
			Silver	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	7.3E-08	---	7.3E-08	Larynx	---	0.0035	---	0.0035
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.6E-07	---	1.6E-07		---	0.0053	---	0.0053
		Exposure Point Total					1.6E-07					0.0053
	Aggregate Soil Total						3.3E-04					0.16
Soil Total							3.3E-04					0.16

Total Risk Across All Media	3.3E-04
Total Hazard Across All Media	0.16
Total Blood HI Across All Media	0.0042
Total Body Weight/Organ Weight HI Across All Media	0.013
Total Nervous System HI Across All Media	0.013
Total Skin HI Across All Media	0.056
Total Kidney HI Across All Media	0.018
Total Thyroid HI Across All Media	0.022
Total Gastrointestinal HI Across All Media	0.017
Total Hair HI Across All Media	0.016
Total Developmental HI Across All Media	0.00011
Total Cardiovascular HI Across All Media	0.00011
Total Lung/Respiratory HI Across All Media	0.0043

TABLE A-9.2i-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Benzene	6.6E-12	---	---	6.6E-12	Blood	0.0000021	---	---	0.0000021
			Dibenzofuran	---	---	---	---	Body and organ weight	0.022	---	---	0.022
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	9.3E-07	---	3.6E-07	1.3E-06	---	---	---	---	---
			Benzo(a)pyrene	7.9E-06	---	3.1E-06	1.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	3.3E-07	---	1.3E-07	4.5E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	2.2E-08	---	8.4E-09	3.0E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Chrysene	1.0E-08	---	4.0E-09	1.4E-08	---	---	---	---	---
			Dibenz(a,h)anthracene	2.0E-06	---	7.7E-07	2.7E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.7E-07	---	2.6E-07	9.2E-07	---	---	---	---	---
			Naphthalene	---	---	---	---	Body weight	0.000022	---	---	0.000022
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.011	---	---	0.011
			Arsenic	3.6E-07	---	3.2E-08	3.9E-07	Skin	0.056	---	0.0050	0.061
			Cadmium	---	---	---	---	Kidney	0.024	---	0.0029	0.027
			Chromium Total	1.4E-07	---	---	1.4E-07	None observed	0.0067	---	---	0.0067
			Cobalt	---	---	---	---	Thyroid	0.037	---	---	0.037
			Iron	---	---	---	---	Gastrointestinal	0.029	---	---	0.029
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0046	---	---	0.0046
			Mercury	---	---	---	---	Nervous system	0.0046	---	---	0.0046
			Silver	---	---	---	---	Skin	0.029	---	---	0.029
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.027	---	---	0.027
			Zinc	---	---	---	---	Blood	0.0071	---	---	0.0071
			Chemical Total	1.2E-05		4.6E-06	1.7E-05		0.26		0.0079	0.27
		Exposure Point Total					1.7E-05					0.27
		Air at Risk Area I	Benzene	---	9.2E-12	---	9.2E-12	Blood	---	0.0000028	---	0.0000028
			Dibenzofuran	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs								---	
			Benzo(a)anthracene	---	7.1E-09	---	7.1E-09	---	---	---	---	---
			Benzo(a)pyrene	---	6.1E-08	---	6.1E-08	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.5E-09	---	2.5E-09	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.7E-09	---	1.7E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---

TABLE A-9.2i-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area I	Chrysene	---	7.9E-10	---	7.9E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-08	---	1.6E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.1E-09	---	5.1E-09	---	---	---	---	---
			Naphthalene	---	1.8E-09	---	1.8E-09	Respiratory tract	---	0.0013	---	0.0013
			Metals	---							---	
			Aluminum	---	---	---	---	Nervous system	---	0.12	---	0.12
			Arsenic	---	5.2E-08	---	5.2E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.057	---	0.057
			Cadmium	---	3.1E-08	---	3.1E-08	Kidney	---	0.12	---	0.12
			Chromium Total	---	1.2E-06	---	1.2E-06	Respiratory tract	---	0.010	---	0.010
			Cobalt	---	7.3E-08	---	7.3E-08	Respiratory tract	---	0.094	---	0.094
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.33	---	0.33
			Mercury	---	---	---	---	Nervous system	---	0.00013	---	0.00013
			Silver	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.5E-06	---	1.5E-06	Larynx	---	0.13	---	0.13
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	3.0E-06	---	3.0E-06		---	0.85	---	0.85
		Exposure Point Total					3.0E-06					0.85
	Aggregate Soil Total						3.0E-06					1.1
Soil Total							2.0E-05					1.1

Total Risk Across All Media	2.0E-05
Total Hazard Across All Media	1.1
Total Blood HI Across All Media	0.0071
Total Body Weight/Organ Weight HI Across All Media	0.022
Total Nervous System HI Across All Media	0.52
Total Skin HI Across All Media	0.15
Total Kidney HI Across All Media	0.15
Total Thyroid HI Across All Media	0.037
Total Gastrointestinal HI Across All Media	0.029
Total Hair HI Across All Media	0.027
Total Developmental HI Across All Media	0.057
Total Cardiovascular HI Across All Media	0.057
Total Lung/Respiratory HI Across All Media	0.29

TABLE A-9.1i-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area I	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.8E-07	---	3.0E-08	2.1E-07	---	---	---	---	---
			Benzo(a)pyrene	1.7E-06	---	3.0E-07	2.0E-06	---	---	---	---	---
			Benzo(b)fluoranthene	2.9E-07	---	5.0E-08	3.4E-07	---	---	---	---	---
			Benzo(k)fluoranthene	9.3E-09	---	1.6E-09	1.1E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.3E-07	---	3.9E-08	2.6E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.4E-08	---	7.6E-09	5.2E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0041	---	---	0.0041
			Arsenic	4.5E-07	---	1.8E-08	4.6E-07	Skin	0.0077	---	0.00031	0.0080
			Cadmium	---	---	---	---	Kidney	0.012	---	0.00063	0.013
			Chromium Total	4.5E-07	---	---	4.5E-07	None observed	0.0024	---	---	0.0024
			Cobalt	---	---	---	---	Thyroid	0.010	---	---	0.010
			Iron	---	---	---	---	Gastrointestinal	0.0056	---	---	0.0056
			Mercury	---	---	---	---	Nervous system	0.0032	---	---	0.0032
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0034	---	---	0.0034
			Chemical Total	3.4E-06	---	4.4E-07	3.8E-06		0.049	---	0.00094	0.050
		Exposure Point Total					3.8E-06					0.050
		Air at Risk Area I	Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	9.0E-12	---	9.0E-12	---	---	---	---	---
			Benzo(a)pyrene	---	8.8E-11	---	8.8E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.7E-12	---	4.7E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.2E-12	---	2.2E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00028	---	0.00028
			Arsenic	---	4.3E-10	---	4.3E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000052	---	0.000052
			Cadmium	---	9.3E-10	---	9.3E-10	Kidney	---	0.00040	---	0.00040
			Chromium Total	---	2.6E-08	---	2.6E-08	Respiratory tract	---	0.000024	---	0.000024

TABLE A-9.1i-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area I	Cobalt	---	1.2E-09	---	1.2E-09	Respiratory tract	---	0.00018	---	0.00018
			Iron	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	Nervous system	---	0.00000058	---	0.00000058
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.12E-08	---	1.12E-08	Larynx	---	0.0015	---	0.0015
			Chemical Total	---	4.0E-08	---	4.0E-08		---	0.0024	---	0.0024
		Exposure Point Total					4.0E-08					0.0024
	Surface Soil Total						3.9E-06					0.052
Soil Total							3.9E-06					0.052

Total Risk Across All Media	3.9E-06
Total Hazard Across All Media	0.052
Total Nervous System HI Across All Media	0.0076
Total Skin HI Across All Media	0.0081
Total Kidney HI Across All Media	0.013
Total Thyroid HI Across All Media	0.010
Total Gastrointestinal HI Across All Media	0.0056
Total Hair HI Across All Media	0.0034
Total Developmental HI Across All Media	0.000052
Total Cardiovascular HI Across All Media	0.000052
Total Lung/Respiratory HI Across All Media	0.0017

TABLE A-9.2i-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Benzene	1.5E-11	---	---	1.5E-11	Blood	0.00000054	---	---	0.00000054
			Dibenzofuran	---	---	---	---	Body and organ weight	0.0056	---	---	0.0056
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.1E-06	---	3.7E-07	2.5E-06	---	---	---	---	---
			Benzo(a)pyrene	1.8E-05	---	3.1E-06	2.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	7.5E-07	---	1.3E-07	8.8E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	4.9E-08	---	8.5E-09	5.8E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Chrysene	2.4E-08	---	4.0E-09	2.8E-08	---	---	---	---	---
			Dibenz(a,h)anthracene	4.5E-06	---	7.8E-07	5.3E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.5E-06	---	2.6E-07	1.8E-06	---	---	---	---	---
			Naphthalene	---	---	---	---	Body weight	0.0000056	---	---	0.0000056
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0029	---	---	0.0029
			Arsenic	8.2E-07	---	3.3E-08	8.5E-07	Skin	0.014	---	0.00056	0.015
			Cadmium	---	---	---	---	Kidney	0.0061	---	0.00032	0.0064
			Chromium Total	3.3E-07	---	---	3.3E-07	None observed	0.0017	---	---	0.0017
			Cobalt	---	---	---	---	Thyroid	0.0094	---	---	0.0094
			Iron	---	---	---	---	Gastrointestinal	0.0073	---	---	0.0073
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0012	---	---	0.0012
			Mercury	---	---	---	---	Nervous system	0.0012	---	---	0.0012
			Silver	---	---	---	---	Skin	0.0073	---	---	0.0073
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0070	---	---	0.0070
			Zinc	---	---	---	---	Blood	0.0018	---	---	0.0018
			Chemical Total	2.8E-05	---	4.7E-06	3.3E-05		0.066	---	0.00088	0.067
		Exposure Point Total					3.3E-05					0.067
		Air at Risk Area I	Benzene	---	4.7E-11	---	4.7E-11	Blood	---	0.0000015	---	0.0000015
			Dibenzofuran	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			Benzo(a)pyrene	---	9.2E-10	---	9.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.5E-11	---	2.5E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---

TABLE A-9.2i-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area I	Chrysene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Naphthalene	---	9.2E-09	---	9.2E-09	Respiratory tract	---	0.00071	---	0.00071
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.00019	---	0.00019
			Arsenic	---	7.9E-10	---	7.9E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000095	---	0.000095
			Cadmium	---	4.7E-10	---	4.7E-10	Kidney	---	0.00020	---	0.00020
			Chromium Total	---	1.9E-08	---	1.9E-08	Respiratory tract	---	0.000017	---	0.000017
			Cobalt	---	1.1E-09	---	1.1E-09	Respiratory tract	---	0.00016	---	0.00016
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00055	---	0.00055
			Mercury	---	---	---	---	Nervous system	---	0.00000021	---	0.00000021
			Silver	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	2.3E-08	---	2.3E-08	Larynx	---	0.0030	---	0.0030
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	5.5E-08	---	5.5E-08		---	0.0050	---	0.0050
		Exposure Point Total					5.5E-08					0.0050
	Aggregate Soil Total						3.3E-05					0.072
Soil Total							3.3E-05					0.072

Total Risk Across All Media	3.3E-05
Total Hazard Across All Media	0.072
Total Blood HI Across All Media	0.0018
Total Body Weight/Organ Weight HI Across All Media	0.0056
Total Nervous System HI Across All Media	0.0061
Total Skin HI Across All Media	0.022
Total Kidney HI Across All Media	0.0066
Total Thyroid HI Across All Media	0.0094
Total Gastrointestinal HI Across All Media	0.0073
Total Hair HI Across All Media	0.0070
Total Developmental HI Across All Media	0.000095
Total Cardiovascular HI Across All Media	0.000095
Total Lung/Respiratory HI Across All Media	0.0040

TABLE A-9.2i-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	Benzene	4.0E-13	---	---	4.0E-13	Blood	0.00000013	---	---	0.00000013
			Dibenzofuran	---	---	---	---	Body and organ weight	0.0013	---	---	0.0013
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	5.6E-08	---	2.4E-08	8.1E-08	---	---	---	---	---
			Benzo(a)pyrene	4.8E-07	---	2.1E-07	6.9E-07	---	---	---	---	---
			Benzo(b)fluoranthene	2.0E-08	---	8.5E-09	2.8E-08	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	1.3E-09	---	5.6E-10	1.9E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Chrysene	6.2E-10	---	2.7E-10	8.9E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	1.2E-07	---	5.1E-08	1.7E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.0E-08	---	1.7E-08	5.8E-08	---	---	---	---	---
			Naphthalene	---	---	---	---	Body weight	0.0000013	---	---	0.0000013
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00069	---	---	0.00069
			Arsenic	2.2E-08	---	2.1E-09	2.4E-08	Skin	0.0034	---	0.00033	0.0037
			Cadmium	---	---	---	---	Kidney	0.0014	---	0.00019	0.0016
			Chromium Total	8.8E-09	---	---	8.8E-09	None observed	0.00041	---	---	0.00041
			Cobalt	---	---	---	---	Thyroid	0.0022	---	---	0.0022
			Iron	---	---	---	---	Gastrointestinal	0.0017	---	---	0.0017
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00028	---	---	0.00028
			Mercury	---	---	---	---	Nervous system	0.00028	---	---	0.00028
			Silver	---	---	---	---	Skin	0.0017	---	---	0.0017
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0017	---	---	0.0017
			Zinc	---	---	---	---	Blood	0.00043	---	---	0.00043
			Chemical Total	7.5E-07		3.1E-07	1.1E-06		0.016		0.00052	0.016
		Exposure Point Total					1.1E-06					0.016
		Air at Risk Area I	Benzene	---	1.8E-12	---	1.8E-12	Blood	---	0.00000055	---	0.00000055
			Dibenzofuran	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs								---	
			Benzo(a)anthracene	---	1.4E-09	---	1.4E-09	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-08	---	1.2E-08	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.0E-10	---	5.0E-10	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	3.3E-10	---	3.3E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---

TABLE A-9.2i-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area I	Chrysene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.3E-09	---	3.3E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Naphthalene	---	3.7E-10	---	3.7E-10	Respiratory tract	---	0.00025	---	0.00025
			Metals	---							---	
			Aluminum	---	---	---	---	Nervous system	---	0.023	---	0.023
			Arsenic	---	1.0E-08	---	1.0E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.011	---	0.011
			Cadmium	---	6.3E-09	---	6.3E-09	Kidney	---	0.024	---	0.024
			Chromium Total	---	2.5E-07	---	2.5E-07	Respiratory tract	---	0.0021	---	0.0021
			Cobalt	---	1.5E-08	---	1.5E-08	Respiratory tract	---	0.019	---	0.019
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.065	---	0.065
			Mercury	---	---	---	---	Nervous system	---	0.000025	---	0.000025
			Silver	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.0E-07	---	3.0E-07	Larynx	---	0.025	---	0.025
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	6.0E-07	---	6.0E-07		---	0.17	---	0.17
		Exposure Point Total					6.0E-07					0.17
	Aggregate Soil Total						6.0E-07					0.19
Soil Total							1.7E-06					0.19

Total Risk Across All Media	1.7E-06
Total Hazard Across All Media	0.19
Total Blood HI Across All Media	0.00043
Total Body Weight/Organ Weight HI Across All Media	0.0013
Total Nervous System HI Across All Media	0.10
Total Skin HI Across All Media	0.017
Total Kidney HI Across All Media	0.026
Total Thyroid HI Across All Media	0.0022
Total Gastrointestinal HI Across All Media	0.0017
Total Hair HI Across All Media	0.0017
Total Developmental HI Across All Media	0.011
Total Cardiovascular HI Across All Media	0.011
Total Lung/Respiratory HI Across All Media	0.058

TABLE A-9.1j-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.79	---	0.44	1.2
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.012	---	---	0.012
			Antimony	---	---	---	---	Blood	0.0030	---	---	0.0030
			Arsenic	---	---	---	---	Skin	0.022	---	0.0026	0.025
			Cadmium	---	---	---	---	Kidney	0.0048	---	0.00076	0.0055
			Chromium Total	---	---	---	---	None observed	6.4	---	---	6.4
			Cobalt	---	---	---	---	Thyroid	0.029	---	---	0.029
			Iron	---	---	---	---	Gastrointestinal	0.026	---	---	0.026
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0056	---	---	0.0056
			Mercury	---	---	---	---	Nervous system	0.0015	---	---	0.0015
			Nickel	---	---	---	---	Body weight	0.13	---	---	0.13
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.068	---	---	0.068
			Zinc	---	---	---	---	Blood	0.065	---	---	0.065
			Chemical Total	---	---	---	---		7.5	---	0.44	8.0
		Exposure Point Total					---					8.0
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---

TABLE A-9.1j-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Cobalt	---	---	---	---	Respiratory tract	---	0.00074	---	0.00074
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.00000040	---	0.00000040
			Nickel	---	---	---	---	Respiratory tract	---	0.015	---	0.015
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.044	---	0.044
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.16	---	0.16
		Exposure Point Total					---					0.16
	Surface Soil Total						---					8.1
Soil Total							---					8.1

Total Risk Across All Media	---
Total Hazard Across All Media	8.1

Total Eye HI Across All Media	1.2
Total Immune System HI Across All Media	1.2
Total Nervous System HI Across All Media	0.025
Total Blood HI Across All Media	0.068
Total Skin HI Across All Media	0.025
Total Kidney HI Across All Media	0.0058
Total Thyroid HI Across All Media	0.029
Total Gastrointestinal HI Across All Media	0.026
Total Body Weight HI Across All Media	0.13
Total Hair HI Across All Media	0.068
Total Developmental HI Across All Media	0.00022
Total Cardiovascular HI Across All Media	0.00022
Total Lung/Respiratory Tract HI Across All Media	0.16

TABLE A-9.1j-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	7.4	---	2.9	10
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.12	---	---	0.12
			Antimony	---	---	---	---	Blood	0.028	---	---	0.028
			Arsenic	---	---	---	---	Skin	0.20	---	0.017	0.22
			Cadmium	---	---	---	---	Kidney	0.045	---	0.0050	0.050
			Chromium Total	---	---	---	---	None observed	59	---	---	59
			Cobalt	---	---	---	---	Thyroid	0.27	---	---	0.27
			Iron	---	---	---	---	Gastrointestinal	0.24	---	---	0.24
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.052	---	---	0.052
			Mercury	---	---	---	---	Nervous system	0.014	---	---	0.014
			Nickel	---	---	---	---	Body weight	1.2	---	---	1.2
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.63	---	---	0.63
			Zinc	---	---	---	---	Blood	0.61	---	---	0.61
			Chemical Total	---	---	---	---		70	---	2.9	73
		Exposure Point Total					---					73
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs	---								
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---

TABLE A-9.1j-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Cobalt	---	---	---	---	Respiratory tract	---	0.00074	---	0.00074
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.00000040	---	0.00000040
			Nickel	---	---	---	---	Respiratory tract	---	0.015	---	0.015
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.044	---	0.044
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.16	---	0.16
		Exposure Point Total					---					0.16
	Surface Soil Total						---					73
Soil Total							---					73

Total Risk Across All Media	---
Total Hazard Across All Media	73

Total Eye HI Across All Media	10
Total Immune System HI Across All Media	10
Total Nervous System HI Across All Media	0.19
Total Blood HI Across All Media	0.64
Total Skin HI Across All Media	0.22
Total Kidney HI Across All Media	0.050
Total Thyroid HI Across All Media	0.27
Total Gastrointestinal HI Across All Media	0.24
Total Body Weight HI Across All Media	1.2
Total Hair HI Across All Media	0.63
Total Developmental HI Across All Media	0.00022
Total Cardiovascular HI Across All Media	0.00022
Total Lung/Respiratory Tract HI Across All Media	0.16

TABLE A-9.1j-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	1.1E-05	---	4.2E-06	1.5E-05	---	---	---	---	---
			Benzo(a)pyrene	7.7E-05	---	2.9E-05	1.1E-04	---	---	---	---	---
			Benzo(b)fluoranthene	9.0E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(k)fluoranthene	6.8E-07	---	2.6E-07	9.4E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.4E-05	---	9.3E-06	3.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.4E-06	---	2.1E-06	7.5E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	3.6E-05	---	1.6E-05	5.2E-05	---	---	---	---	---
			Aroclor-1260	1.9E-06	---	8.4E-07	2.7E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	1.1E-05	---	1.1E-06	1.2E-05	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	4.7E-02	---	---	4.7E-02	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	4.7E-02	---	6.7E-05	4.7E-02		---	---	---	---
		Exposure Point Total					4.7E-02					---
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.4E-10	---	4.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.0E-11	---	9.0E-11	---	---	---	---	---

TABLE A-9.1j-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Aroclor-1260	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	6.1E-09	---	6.1E-09	---	---	---	---	---
			Cadmium	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Chromium Total	---	8.7E-04	---	8.7E-04	---	---	---	---	---
			Cobalt	---	1.7E-08	---	1.7E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	1.5E-07	---	1.5E-07	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	8.7E-04	---	8.7E-04		---	---	---	---
		Exposure Point Total					8.7E-04					---
	Surface Soil Total						4.8E-02					---
Soil Total							4.8E-02					---

Total Risk Across All Media: 4.8E-02

Total Hazard Across All Media: ---

TABLE A-9.1j-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	5.7E-07	---	4.9E-07	1.1E-06	---	---	---	---	---
			Benzo(a)pyrene	4.0E-06	---	3.4E-06	7.4E-06	---	---	---	---	---
			Benzo(b)fluoranthene	4.7E-07	---	4.0E-07	8.7E-07	---	---	---	---	---
			Benzo(k)fluoranthene	3.5E-08	---	3.0E-08	6.6E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-06	---	1.1E-06	2.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.8E-07	---	2.4E-07	5.2E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	8.0E-06	---	7.4E-06	1.5E-05	Eyes, Immune system	0.56	---	0.52	1.1
			Aroclor-1260	4.2E-07	---	3.9E-07	8.2E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0089	---	---	0.0089
			Antimony	---	---	---	---	Blood	0.0022	---	---	0.0022
			Arsenic	2.5E-06	---	5.0E-07	3.0E-06	Skin	0.016	---	0.0031	0.019
			Cadmium	---	---	---	---	Kidney	0.0034	---	0.00090	0.0043
			Chromium Total	2.4E-03	---	---	2.4E-03	None observed	4.5	---	---	4.5
			Cobalt	---	---	---	---	Thyroid	0.021	---	---	0.021
			Iron	---	---	---	---	Gastrointestinal	0.018	---	---	0.018
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0040	---	---	0.0040
			Mercury	---	---	---	---	Nervous system	0.0011	---	---	0.0011
			Nickel	---	---	---	---	Body weight	0.093	---	---	0.093
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.048	---	---	0.048
			Zinc	---	---	---	---	Blood	0.047	---	---	0.047
			Chemical Total	2.5E-03	---	1.4E-05	2.5E-03		5.4	---	0.52	5.9
		Exposure Point Total					2.5E-03					5.9
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs	---								
			Benzo(a)anthracene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	8.9E-12	---	8.9E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.5E-11	---	3.5E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.1E-12	---	7.1E-12	---	---	---	---	---

TABLE A-9.1j-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs	---								
			Aroclor-1254	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Aroclor-1260	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.00030	---	0.00030
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.2E-09	---	1.2E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000053	---	0.000053
			Cadmium	---	3.7E-10	---	3.7E-10	Kidney	---	0.000057	---	0.000057
			Chromium Total	---	6.9E-05	---	6.9E-05	Respiratory tract	---	0.023	---	0.023
			Cobalt	---	3.4E-09	---	3.4E-09	Respiratory tract	---	0.00018	---	0.00018
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00094	---	0.00094
			Mercury	---	---	---	---	Nervous system	---	0.000000095	---	0.000000095
			Nickel	---	2.9E-08	---	2.9E-08	Respiratory tract	---	0.0035	---	0.0035
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	2.19E-07	---	2.19E-07	Larynx	---	0.010	---	0.010
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	6.9E-05	---	6.9E-05		---	0.038	---	0.038
		Exposure Point Total					6.9E-05					0.038
	Surface Soil Total						2.5E-03					5.9
Soil Total							2.5E-03					5.9

Total Risk Across All Media	2.5E-03
Total Hazard Across All Media	5.9
Total Eye HI Across All Media	1.1
Total Immune System HI Across All Media	1.1
Total Nervous System HI Across All Media	0.015
Total Blood HI Across All Media	0.049
Total Skin HI Across All Media	0.019
Total Kidney HI Across All Media	0.0044
Total Thyroid HI Across All Media	0.021
Total Gastrointestinal HI Across All Media	0.018
Total Body Weight HI Across All Media	0.093
Total Hair HI Across All Media	0.048
Total Developmental HI Across All Media	0.000053
Total Cardiovascular HI Across All Media	0.000053
Total Lung/Respiratory Tract HI Across All Media	0.037

TABLE A-9.1j-9 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	3.8E-07	---	4.1E-07	7.9E-07	---	---	---	---	---
			Benzo(a)pyrene	2.7E-06	---	2.9E-06	5.6E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.1E-07	---	3.4E-07	6.6E-07	---	---	---	---	---
			Benzo(k)fluoranthene	2.4E-08	---	2.6E-08	4.9E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	8.5E-07	---	9.2E-07	1.8E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.9E-07	---	2.1E-07	3.9E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.8E-06	---	2.1E-06	3.9E-06	Eyes, Immune system	0.32	---	0.37	0.68
			Aroclor-1260	9.5E-08	---	1.1E-07	2.1E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0050	---	---	0.0050
			Antimony	---	---	---	---	Blood	0.0012	---	---	0.0012
			Arsenic	5.6E-07	---	1.4E-07	7.1E-07	Skin	0.0088	---	0.0022	0.011
			Cadmium	---	---	---	---	Kidney	0.0019	---	0.00064	0.0026
			Chromium Total	1.6E-03	---	---	1.6E-03	None observed	2.5	---	---	2.5
			Cobalt	---	---	---	---	Thyroid	0.012	---	---	0.012
			Iron	---	---	---	---	Gastrointestinal	0.010	---	---	0.010
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0022	---	---	0.0022
			Mercury	---	---	---	---	Nervous system	0.00059	---	---	0.00059
			Nickel	---	---	---	---	Body weight	0.052	---	---	0.052
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.027	---	---	0.027
			Zinc	---	---	---	---	Blood	0.026	---	---	0.026
			Chemical Total	1.6E-03	---	7.2E-06	1.7E-03		3.0	---	0.37	3.4
		Exposure Point Total					1.7E-03					3.4
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	2.7E-12	---	2.7E-12	---	---	---	---	---
			Benzo(a)pyrene	---	1.9E-11	---	1.9E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.2E-12	---	2.2E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.7E-12	---	1.7E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.5E-12	---	6.5E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.3E-12	---	1.3E-12	---	---	---	---	---

TABLE A-9.1j-9 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	2.4E-11	---	2.4E-11	---	---	---	---	---
			Aroclor-1260	---	1.3E-12	---	1.3E-12	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.000046	---	0.000046
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	7.6E-11	---	7.6E-11	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0000082	---	0.0000082
			Cadmium	---	2.3E-11	---	2.3E-11	Kidney	---	0.0000089	---	0.0000089
			Chromium Total	---	1.3E-05	---	1.3E-05	Respiratory tract	---	0.0036	---	0.0036
			Cobalt	---	2.1E-10	---	2.1E-10	Respiratory tract	---	0.000027	---	0.000027
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00015	---	0.00015
			Mercury	---	---	---	---	Nervous system	---	0.000000015	---	0.000000015
			Nickel	---	1.8E-09	---	1.8E-09	Respiratory tract	---	0.00054	---	0.00054
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.4E-08	---	1.4E-08	Larynx	---	0.0016	---	0.0016
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.3E-05	---	1.3E-05		---	0.0060	---	0.0060
		Exposure Point Total					1.3E-05					0.0060
	Surface Soil Total						1.7E-03					3.4
Soil Total							1.7E-03					3.4
Sediment	Sediment	Sediment at Risk Area J	PAHs									
			Benzo(a)anthracene	2.7E-07	---	3.0E-07	5.7E-07	---	---	---	---	---
			Benzo(a)pyrene	2.8E-06	---	3.1E-06	5.9E-06	---	---	---	---	---
			Benzo(b)fluoranthene	4.4E-07	---	4.7E-07	9.1E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	1.3E-08	---	1.4E-08	2.7E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.1E-07	---	5.6E-07	1.1E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.5E-07	---	2.7E-07	5.2E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	6.5E-08	---	7.6E-08	1.4E-07	Eyes, Immune system	0.011	---	0.013	0.025
			Aroclor-1260	1.0E-07	---	1.2E-07	2.3E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0014	---	---	0.0014
			Arsenic	4.3E-08	---	1.1E-08	5.4E-08	Skin	0.00067	---	0.00017	0.00084
			Chromium Total	7.9E-06	---	---	7.9E-06	None observed	0.012	---	---	0.012

TABLE A-9.1j-9 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Sediment at Risk Area J	Cobalt	---	---	---	---	Thyroid	0.0051	---	---	0.0051
			Iron	---	---	---	---	Gastrointestinal	0.0036	---	---	0.0036
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0010	---	---	0.0010
			Mercury	---	---	---	---	Nervous system	0.00057	---	---	0.00057
			Vanadium	---	---	---	---	Hair	0.0023	---	---	0.0023
			Chemical Total	1.2E-05	---	4.9E-06	1.7E-05		0.038	---	0.014	0.052
		Exposure Point Total					1.7E-05					0.052
Sediment Total							1.7E-05					0.052
Surface Water	Surface Water	Surface Water at Risk Area J	PAHs									
			Benzo(a)anthracene	---	---	2.6E-07	2.6E-07	---	---	---	---	---
			Benzo(a)pyrene	---	---	5.2E-06	5.2E-06	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	8.3E-07	8.3E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	5.3E-07	5.3E-07	---	---	---	---	---
			Metals									
			Arsenic	---	---	3.2E-09	3.2E-09	Skin	---	---	0.000050	0.000050
			Cadmium	---	---	---	---	Kidney	---	---	0.00099	0.00099
			Chromium Total	---	---	2.4E-09	2.4E-09	None observed	---	---	0.0061	0.0061
			Cobalt	---	---	---	---	Thyroid	---	---	0.00011	0.00011
			Iron	---	---	---	---	Gastrointestinal	---	---	0.00071	0.00071
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	---	0.011	0.011
			Mercury	---	---	---	---	Nervous system	---	---	0.000022	0.000022
			Vanadium	---	---	---	---	Hair	---	---	0.0021	0.0021
			Chemical Total	---	---	6.8E-06	6.8E-06		---	---	0.021	0.021
		Exposure Point Total					6.8E-06					0.021
Surface Water Total							6.8E-06					0.021

TABLE A-9.1j-9 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.7E-03
Total Hazard Across All Media	3.5
Total Eye HI Across All Media	0.71
Total Immune System HI Across All Media	0.71
Total Nervous System HI Across All Media	0.022
Total Blood HI Across All Media	0.027
Total Skin HI Across All Media	0.012
Total Kidney HI Across All Media	0.0036
Total Thyroid HI Across All Media	0.017
Total Gastrointestinal HI Across All Media	0.015
Total Body Weight HI Across All Media	0.052
Total Hair HI Across All Media	0.032
Total Developmental HI Across All Media	0.0000082
Total Cardiovascular HI Across All Media	0.0000082
Total Lung/Respiratory Tract HI Across All Media	0.0058

TABLE A-9.2j-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	Liver	0.00045	---	0.00018	0.00062
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.045	---	0.0053	0.050
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.16	---	0.088	0.25
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.012	---	---	0.012
			Antimony	---	---	---	---	Blood	0.0033	---	---	0.0033
			Arsenic	---	---	---	---	Skin	0.021	---	0.0026	0.024
			Cadmium	---	---	---	---	Kidney	0.0048	---	0.00076	0.0055
			Chromium Total	---	---	---	---	None observed	1.7	---	---	1.7
			Cobalt	---	---	---	---	Thyroid	0.031	---	---	0.031
			Iron	---	---	---	---	Gastrointestinal	0.029	---	---	0.029
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0052	---	---	0.0052
			Mercury	---	---	---	---	Nervous system	0.0047	---	---	0.0047
			Nickel	---	---	---	---	Body weight	0.038	---	---	0.038
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.044	---	---	0.044
			Zinc	---	---	---	---	Blood	0.020	---	---	0.020
			Chemical Total	---	---	---	---		2.2	---	0.097	2.3
		Exposure Point Total					---					2.3
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	---	---	---	---	---

TABLE A-9.2j-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000056	---	0.00000056
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Cobalt	---	---	---	---	Respiratory tract	---	0.00078	---	0.00078
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Nickel	---	---	---	---	Respiratory tract	---	0.0043	---	0.0043
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.028	---	0.028
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.065	---	0.065
		Exposure Point Total					---					0.065
	Aggregate Soil Total						---					2.3
Soil Total							---					2.3

TABLE A-9.2j-1 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	---
Total Hazard Across All Media	2.3
Total Liver HI Across All Media	0.00063
Total Developmental HI Across All Media	0.050
Total Eye HI Across All Media	0.25
Total Immune System HI Across All Media	0.25
Total Nervous System HI Across All Media	0.027
Total Blood HI Across All Media	0.023
Total Skin HI Across All Media	0.024
Total Kidney HI Across All Media	0.0058
Total Thyroid HI Across All Media	0.031
Total Gastrointestinal HI Across All Media	0.029
Total Body Weight HI Across All Media	0.038
Total Hair HI Across All Media	0.044
Total Reproductive HI Across All Media	0.00000056
Total Endocrine HI Across All Media	0.00000056
Total Lung/Respiratory Tract HI Across All Media	0.060
Total Cardiovascular HI Across All Media	0.00022

TABLE A-9.2j-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	Liver	0.0042	---	0.0012	0.0053
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.42	---	0.035	0.45
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	1.5	---	0.58	2.0
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.11	---	---	0.11
			Antimony	---	---	---	---	Blood	0.031	---	---	0.031
			Arsenic	---	---	---	---	Skin	0.20	---	0.017	0.22
			Cadmium	---	---	---	---	Kidney	0.045	---	0.0050	0.050
			Chromium Total	---	---	---	---	None observed	16	---	---	16
			Cobalt	---	---	---	---	Thyroid	0.29	---	---	0.29
			Iron	---	---	---	---	Gastrointestinal	0.27	---	---	0.27
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.049	---	---	0.049
			Mercury	---	---	---	---	Nervous system	0.044	---	---	0.044
			Nickel	---	---	---	---	Body weight	0.35	---	---	0.35
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.41	---	---	0.41
			Zinc	---	---	---	---	Blood	0.18	---	---	0.18
			Chemical Total	---	---	---	---		20	---	0.63	21
		Exposure Point Total					---					21
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	---	---	---	---	---

TABLE A-9.2j-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000056	---	0.00000056
			PAHs	---								
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Cobalt	---	---	---	---	Respiratory tract	---	0.00078	---	0.00078
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Nickel	---	---	---	---	Respiratory tract	---	0.0043	---	0.0043
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.028	---	0.028
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.065	---	0.065
		Exposure Point Total					---					0.065
	Aggregate Soil Total						---					21
Soil Total							---					21

TABLE A-9.2j-2 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	---
Total Hazard Across All Media	21
Total Liver HI Across All Media	0.0053
Total Developmental HI Across All Media	0.45
Total Eye HI Across All Media	2.0
Total Immune System HI Across All Media	2.0
Total Nervous System HI Across All Media	0.21
Total Blood HI Across All Media	0.21
Total Skin HI Across All Media	0.22
Total Kidney HI Across All Media	0.050
Total Thyroid HI Across All Media	0.29
Total Gastrointestinal HI Across All Media	0.27
Total Body Weight HI Across All Media	0.35
Total Hair HI Across All Media	0.41
Total Reproductive HI Across All Media	0.00000056
Total Endocrine HI Across All Media	0.00000056
Total Lung/Respiratory Tract HI Across All Media	0.060
Total Cardiovascular HI Across All Media	0.00022

TABLE A-9.2j-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	4.1E-07	---	1.3E-07	5.4E-07	---	---	---	---	---
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	6.6E-06	---	6.3E-07	7.2E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	7.6E-06	---	2.9E-06	1.0E-05	---	---	---	---	---
			Benzo(a)pyrene	6.0E-05	---	2.3E-05	8.3E-05	---	---	---	---	---
			Benzo(b)fluoranthene	7.0E-06	---	2.7E-06	9.7E-06	---	---	---	---	---
			Benzo(k)fluoranthene	5.2E-07	---	2.0E-07	7.2E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.4E-05	---	5.3E-06	1.9E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.9E-06	---	1.9E-06	6.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	7.2E-06	---	3.2E-06	1.0E-05	---	---	---	---	---
			Aroclor-1260	8.4E-07	---	3.7E-07	1.2E-06	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	1.1E-05	---	1.0E-06	1.2E-05	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	1.3E-02	---	---	1.3E-02	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	1.3E-02	---	4.1E-05	1.3E-02		---	---	---	---
		Exposure Point Total					1.3E-02					---
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	2.2E-08	---	2.2E-08	---	---	---	---	---

TABLE A-9.2j-3 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	3.7E-07	---	3.7E-07	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	8.7E-11	---	8.7E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Aroclor-1260	---	4.5E-11	---	4.5E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	6.0E-09	---	6.0E-09	---	---	---	---	---
			Cadmium	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Chromium Total	---	2.4E-04	---	2.4E-04	---	---	---	---	---
			Cobalt	---	1.8E-08	---	1.8E-08	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	4.3E-08	---	4.3E-08	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	7.1E-07	---	7.1E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	2.4E-04	---	2.4E-04		---	---	---	---
		Exposure Point Total					2.4E-04					---
	Aggregate Soil Total						1.3E-02					---
Soil Total							1.3E-02					---

Total Risk Across All Media: 1.3E-02

Total Hazard Across All Media: ---

TABLE A-9.2j-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	8.2E-08	---	5.4E-08	1.4E-07	Liver	0.00029	---	0.00019	0.00048
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.3E-06	---	2.6E-07	1.6E-06	Developmental	0.029	---	0.0057	0.034
			PAHs									
			Benzo(a)anthracene	3.5E-07	---	3.0E-07	6.6E-07	---	---	---	---	---
			Benzo(a)pyrene	2.8E-06	---	2.4E-06	5.2E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.3E-07	---	2.8E-07	6.1E-07	---	---	---	---	---
			Benzo(k)fluoranthene	2.5E-08	---	2.1E-08	4.6E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	6.5E-07	---	5.6E-07	1.2E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.3E-07	---	2.0E-07	4.3E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.4E-06	---	1.3E-06	2.8E-06	Eyes, Immune system	0.10	---	0.094	0.19
			Aroclor-1260	1.7E-07	---	1.6E-07	3.2E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0079	---	---	0.0079
			Antimony	---	---	---	---	Blood	0.0021	---	---	0.0021
			Arsenic	2.2E-06	---	4.4E-07	2.7E-06	Skin	0.014	---	0.0027	0.017
			Cadmium	---	---	---	---	Kidney	0.0031	---	0.00081	0.0039
			Chromium Total	6.0E-04	---	---	6.0E-04	None observed	1.1	---	---	1.1
			Cobalt	---	---	---	---	Thyroid	0.020	---	---	0.020
			Iron	---	---	---	---	Gastrointestinal	0.018	---	---	0.018
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0034	---	---	0.0034
			Mercury	---	---	---	---	Nervous system	0.0030	---	---	0.0030
			Nickel	---	---	---	---	Body weight	0.024	---	---	0.024
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.028	---	---	0.028
			Zinc	---	---	---	---	Blood	0.013	---	---	0.013
			Chemical Total	6.1E-04	---	6.0E-06	6.2E-04		1.4	---	0.10	1.5
		Exposure Point Total					6.2E-04					1.5
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	4.0E-12	---	4.0E-12	---	---	---	---	---

TABLE A-9.2j-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans	---								
			2,3,7,8-TCDD TEQ	---	6.5E-11	---	6.5E-11	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000012	---	0.00000012
			PAHs	---								
			Benzo(a)anthracene	---	9.0E-12	---	9.0E-12	---	---	---	---	---
			Benzo(a)pyrene	---	7.1E-11	---	7.1E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.3E-12	---	8.3E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	6.2E-12	---	6.2E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.8E-11	---	1.8E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.8E-12	---	5.8E-12	---	---	---	---	---
			PCBs	---								
			Aroclor-1254	---	6.9E-11	---	6.9E-11	---	---	---	---	---
			Aroclor-1260	---	8.1E-12	---	8.1E-12	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.00027	---	0.00027
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.1E-09	---	1.1E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000046	---	0.000046
			Cadmium	---	3.3E-10	---	3.3E-10	Kidney	---	0.000052	---	0.000052
			Chromium Total	---	1.7E-05	---	1.7E-05	Respiratory tract	---	0.0057	---	0.0057
			Cobalt	---	3.2E-09	---	3.2E-09	Respiratory tract	---	0.00017	---	0.00017
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00079	---	0.00079
			Mercury	---	---	---	---	Nervous system	---	0.00000027	---	0.00000027
			Nickel	---	7.6E-09	---	7.6E-09	Respiratory tract	---	0.00091	---	0.00091
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.3E-07	---	1.3E-07	Larynx	---	0.0060	---	0.0060
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.7E-05	---	1.7E-05		---	0.014	---	0.014
		Exposure Point Total					1.7E-05					0.014
	Aggregate Soil Total						6.3E-04					1.5
Soil Total							6.3E-04					1.5

TABLE A-9.2j-5 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	6.3E-04
Total Hazard Across All Media	1.5
Total Liver HI Across All Media	0.00048
Total Developmental HI Across All Media	0.034
Total Eye HI Across All Media	0.19
Total Immune System HI Across All Media	0.19
Total Nervous System HI Across All Media	0.015
Total Blood HI Across All Media	0.015
Total Skin HI Across All Media	0.017
Total Kidney HI Across All Media	0.0039
Total Thyroid HI Across All Media	0.020
Total Gastrointestinal HI Across All Media	0.018
Total Body Weight HI Across All Media	0.024
Total Hair HI Across All Media	0.028
Total Reproductive HI Across All Media	0.00000012
Total Endocrine HI Across All Media	0.00000012
Total Lung/Respiratory Tract HI Across All Media	0.013
Total Cardiovascular HI Across All Media	0.000046

TABLE A-9.2j-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	9.1E-08	---	6.0E-08	1.5E-07	Liver	0.00032	---	0.00021	0.00053
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.5E-06	---	2.9E-07	1.8E-06	Developmental	0.032	---	0.0063	0.038
			PAHs									
			Benzo(a)anthracene	3.9E-07	---	3.4E-07	7.3E-07	---	---	---	---	---
			Benzo(a)pyrene	3.1E-06	---	2.7E-06	5.8E-06	---	---	---	---	---
			Benzo(b)fluoranthene	3.6E-07	---	3.1E-07	6.8E-07	---	---	---	---	---
			Benzo(k)fluoranthene	2.7E-08	---	2.3E-08	5.1E-08	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	7.2E-07	---	6.2E-07	1.3E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.5E-07	---	2.2E-07	4.7E-07	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.6E-06	---	1.5E-06	3.1E-06	Eyes, Immune system	0.11	---	0.10	0.22
			Aroclor-1260	1.9E-07	---	1.7E-07	3.6E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0088	---	---	0.0088
			Antimony	---	---	---	---	Blood	0.0023	---	---	0.0023
			Arsenic	2.5E-06	---	4.9E-07	2.9E-06	Skin	0.015	---	0.0030	0.018
			Cadmium	---	---	---	---	Kidney	0.0034	---	0.00090	0.0043
			Chromium Total	6.7E-04	---	---	6.7E-04	None observed	1.2	---	---	1.2
			Cobalt	---	---	---	---	Thyroid	0.022	---	---	0.022
			Iron	---	---	---	---	Gastrointestinal	0.020	---	---	0.020
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0037	---	---	0.0037
			Mercury	---	---	---	---	Nervous system	0.0034	---	---	0.0034
			Nickel	---	---	---	---	Body weight	0.027	---	---	0.027
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.031	---	---	0.031
			Zinc	---	---	---	---	Blood	0.014	---	---	0.014
			Chemical Total	6.8E-04	---	6.7E-06	6.9E-04		1.5	---	0.11	1.7
		Exposure Point Total					6.9E-04					1.7
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	4.4E-12	---	4.4E-12	---	---	---	---	---

TABLE A-9.2j-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans	---								
			2,3,7,8-TCDD TEQ	---	7.3E-11	---	7.3E-11	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000013	---	0.00000013
			PAHs	---								
			Benzo(a)anthracene	---	1.0E-11	---	1.0E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.2E-12	---	9.2E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	6.9E-12	---	6.9E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.5E-12	---	6.5E-12	---	---	---	---	---
			PCBs	---								
			Aroclor-1254	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Aroclor-1260	---	9.0E-12	---	9.0E-12	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.00030	---	0.00030
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.2E-09	---	1.2E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000051	---	0.000051
			Cadmium	---	3.7E-10	---	3.7E-10	Kidney	---	0.000057	---	0.000057
			Chromium Total	---	1.9E-05	---	1.9E-05	Respiratory tract	---	0.0063	---	0.0063
			Cobalt	---	3.6E-09	---	3.6E-09	Respiratory tract	---	0.00018	---	0.00018
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00088	---	0.00088
			Mercury	---	---	---	---	Nervous system	---	0.00000030	---	0.00000030
			Nickel	---	8.5E-09	---	8.5E-09	Respiratory tract	---	0.0010	---	0.0010
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.41E-07	---	1.41E-07	Larynx	---	0.0067	---	0.0067
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.9E-05	---	1.9E-05		---	0.015	---	0.015
		Exposure Point Total					1.9E-05					0.015
	Aggregate Soil Total						7.0E-04					1.7
Soil Total							7.0E-04					1.7

TABLE A-9.2j-6 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	7.0E-04
Total Hazard Across All Media	1.7
Total Liver HI Across All Media	0.00053
Total Developmental HI Across All Media	0.038
Total Eye HI Across All Media	0.22
Total Immune System HI Across All Media	0.22
Total Nervous System HI Across All Media	0.017
Total Blood HI Across All Media	0.016
Total Skin HI Across All Media	0.018
Total Kidney HI Across All Media	0.0044
Total Thyroid HI Across All Media	0.022
Total Gastrointestinal HI Across All Media	0.020
Total Body Weight HI Across All Media	0.027
Total Hair HI Across All Media	0.031

TABLE A-9.2j-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	6.3E-09	---	1.9E-09	8.1E-09	Liver	0.00055	---	0.00016	0.00071
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.0E-07	---	9.1E-09	1.1E-07	Developmental	0.055	---	0.0049	0.059
			PAHs									
			Benzo(a)anthracene	2.7E-08	---	1.1E-08	3.8E-08	---	---	---	---	---
			Benzo(a)pyrene	2.1E-07	---	8.4E-08	3.0E-07	---	---	---	---	---
			Benzo(b)fluoranthene	2.5E-08	---	9.7E-09	3.5E-08	---	---	---	---	---
			Benzo(k)fluoranthene	1.9E-09	---	7.3E-10	2.6E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	5.0E-08	---	1.9E-08	6.9E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.7E-08	---	6.8E-09	2.4E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.1E-07	---	4.6E-08	1.6E-07	Eyes, Immune system	0.19	---	0.081	0.27
			Aroclor-1260	1.3E-08	---	5.4E-09	1.8E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.015	---	---	0.015
			Antimony	---	---	---	---	Blood	0.0040	---	---	0.0040
			Arsenic	1.7E-07	---	1.5E-08	1.8E-07	Skin	0.026	---	0.0024	0.029
			Cadmium	---	---	---	---	Kidney	0.0059	---	0.00070	0.0066
			Chromium Total	4.6E-05	---	---	4.6E-05	None observed	2.1	---	---	2.1
			Cobalt	---	---	---	---	Thyroid	0.038	---	---	0.038
			Iron	---	---	---	---	Gastrointestinal	0.035	---	---	0.035
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0064	---	---	0.0064
			Mercury	---	---	---	---	Nervous system	0.0058	---	---	0.0058
			Nickel	---	---	---	---	Body weight	0.047	---	---	0.047
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.053	---	---	0.053
			Zinc	---	---	---	---	Blood	0.024	---	---	0.024
			Chemical Total	4.7E-05	---	2.1E-07	4.7E-05		2.6	---	0.089	2.7
		Exposure Point Total					4.7E-05					2.7
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	9.2E-11	---	9.2E-11	---	---	---	---	---

TABLE A-9.2j-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans	---								
			2,3,7,8-TCDD TEQ	---	1.5E-09	---	1.5E-09	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000069	---	0.000069
			PAHs	---								
			Benzo(a)anthracene	---	2.1E-10	---	2.1E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.6E-09	---	1.6E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.1E-10	---	4.1E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			PCBs	---								
			Aroclor-1254	---	1.6E-09	---	1.6E-09	---	---	---	---	---
			Aroclor-1260	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.15	---	0.15
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	2.5E-08	---	2.5E-08	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.027	---	0.027
			Cadmium	---	7.7E-09	---	7.7E-09	Kidney	---	0.030	---	0.030
			Chromium Total	---	3.9E-04	---	3.9E-04	Respiratory tract	---	3.3	---	3.3
			Cobalt	---	7.4E-08	---	7.4E-08	Respiratory tract	---	0.096	---	0.096
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.46	---	0.46
			Mercury	---	---	---	---	Nervous system	---	0.00016	---	0.00016
			Nickel	---	1.8E-07	---	1.8E-07	Respiratory tract	---	0.53	---	0.53
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	2.9E-06	---	2.9E-06	Larynx	---	0.24	---	0.24
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	4.0E-04	---	4.0E-04		---	4.8	---	4.8
		Exposure Point Total					4.0E-04					4.8
	Aggregate Soil Total						4.4E-04					7.5
Soil Total							4.4E-04					7.5

TABLE A-9.2j-8 RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	4.4E-04
Total Hazard Across All Media	7.5
Total Liver HI Across All Media	0.00078
Total Developmental HI Across All Media	0.086
Total Eye HI Across All Media	0.27
Total Immune System HI Across All Media	0.27
Total Nervous System HI Across All Media	0.67
Total Blood HI Across All Media	0.028
Total Skin HI Across All Media	0.055
Total Kidney HI Across All Media	0.036
Total Thyroid HI Across All Media	0.038
Total Gastrointestinal HI Across All Media	0.035
Total Body Weight HI Across All Media	0.047
Total Hair HI Across All Media	0.053
Total Reproductive HI Across All Media	0.000069
Total Endocrine HI Across All Media	0.000069
Total Lung/Respiratory Tract HI Across All Media	4.2
Total Cardiovascular HI Across All Media	0.027

TABLE A-9.1j-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.39	---	0.063	0.46
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0062	---	---	0.0062
			Antimony	---	---	---	---	Blood	0.0015	---	---	0.0015
			Arsenic	---	---	---	---	Skin	0.011	---	0.00038	0.011
			Cadmium	---	---	---	---	Kidney	0.0024	---	0.00011	0.0025
			Chromium Total	---	---	---	---	None observed	3.2	---	---	3.2
			Cobalt	---	---	---	---	Thyroid	0.015	---	---	0.015
			Iron	---	---	---	---	Gastrointestinal	0.013	---	---	0.013
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0028	---	---	0.0028
			Mercury	---	---	---	---	Nervous system	0.00074	---	---	0.00074
			Nickel	---	---	---	---	Body weight	0.065	---	---	0.065
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.034	---	---	0.034
			Zinc	---	---	---	---	Blood	0.033	---	---	0.033
			Chemical Total	---	---	---	---		3.8	---	0.063	3.8
		Exposure Point Total					---					3.8
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---

TABLE A-9.1j-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Cobalt	---	---	---	---	Respiratory tract	---	0.00074	---	0.00074
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.00000040	---	0.00000040
			Nickel	---	---	---	---	Respiratory tract	---	0.015	---	0.015
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.044	---	0.044
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.16	---	0.16
		Exposure Point Total					---					0.16
	Surface Soil Total						---					4.0
Soil Total							---					4.0

Total Risk Across All Media	---
Total Hazard Across All Media	4.0
Total Eye HI Across All Media	0.46
Total Immune System HI Across All Media	0.46
Total Nervous System HI Across All Media	0.015
Total Blood HI Across All Media	0.034
Total Skin HI Across All Media	0.012
Total Kidney HI Across All Media	0.0027
Total Thyroid HI Across All Media	0.015
Total Gastrointestinal HI Across All Media	0.013
Total Body Weight HI Across All Media	0.065
Total Hair HI Across All Media	0.034
Total Developmental HI Across All Media	0.00022
Total Cardiovascular HI Across All Media	0.00022
Total Lung/Respiratory Tract HI Across All Media	0.16

TABLE A-9.1j-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	3.7	---	0.58	4.3
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.058	---	---	0.058
			Antimony	---	---	---	---	Blood	0.014	---	---	0.014
			Arsenic	---	---	---	---	Skin	0.10	---	0.0034	0.11
			Cadmium	---	---	---	---	Kidney	0.022	---	0.0010	0.023
			Chromium Total	---	---	---	---	None observed	30	---	---	30
			Cobalt	---	---	---	---	Thyroid	0.14	---	---	0.14
			Iron	---	---	---	---	Gastrointestinal	0.12	---	---	0.12
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.026	---	---	0.026
			Mercury	---	---	---	---	Nervous system	0.0069	---	---	0.0069
			Nickel	---	---	---	---	Body weight	0.61	---	---	0.61
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.32	---	---	0.32
			Zinc	---	---	---	---	Blood	0.31	---	---	0.31
			Chemical Total	---	---	---	---		35	---	0.58	36
		Exposure Point Total					---					36
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs	---								
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---

TABLE A-9.1j-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0013	---	0.0013
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Cobalt	---	---	---	---	Respiratory tract	---	0.00074	---	0.00074
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0039	---	0.0039
			Mercury	---	---	---	---	Nervous system	---	0.00000040	---	0.00000040
			Nickel	---	---	---	---	Respiratory tract	---	0.015	---	0.015
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.044	---	0.044
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.16	---	0.16
		Exposure Point Total					---					0.16
	Surface Soil Total						---					36
Soil Total							---					36

Total Risk Across All Media	---
Total Hazard Across All Media	36
Total Eye HI Across All Media	4.3
Total Immune System HI Across All Media	4.3
Total Nervous System HI Across All Media	0.096
Total Blood HI Across All Media	0.32
Total Skin HI Across All Media	0.11
Total Kidney HI Across All Media	0.024
Total Thyroid HI Across All Media	0.14
Total Gastrointestinal HI Across All Media	0.12
Total Body Weight HI Across All Media	0.61
Total Hair HI Across All Media	0.32
Total Developmental HI Across All Media	0.00022
Total Cardiovascular HI Across All Media	0.00022
Total Lung/Respiratory Tract HI Across All Media	0.16

TABLE A-9.1j-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	3.3E-06	---	4.8E-07	3.8E-06	---	---	---	---	---
			Benzo(a)pyrene	2.3E-05	---	3.4E-06	2.7E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-06	---	4.0E-07	3.1E-06	---	---	---	---	---
			Benzo(k)fluoranthene	2.1E-07	---	3.0E-08	2.4E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	7.4E-06	---	1.1E-06	8.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-06	---	2.4E-07	1.9E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	5.8E-06	---	9.1E-07	6.7E-06	---	---	---	---	---
			Aroclor-1260	3.1E-07	---	4.8E-08	3.5E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	1.8E-06	---	6.1E-08	1.9E-06	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	1.4E-02	---	---	1.4E-02	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	1.4E-02	---	6.6E-06	1.4E-02		---	---	---	---
		Exposure Point Total					1.4E-02					---
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	9.8E-11	---	9.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	6.9E-10	---	6.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	6.1E-11	---	6.1E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.4E-10	---	2.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.9E-11	---	4.9E-11	---	---	---	---	---

TABLE A-9.1j-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	5.8E-10	---	5.8E-10	---	---	---	---	---
			Aroclor-1260	---	3.1E-11	---	3.1E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.8E-09	---	1.8E-09	---	---	---	---	---
			Cadmium	---	5.6E-10	---	5.6E-10	---	---	---	---	---
			Chromium Total	---	4.7E-04	---	4.7E-04	---	---	---	---	---
			Cobalt	---	5.1E-09	---	5.1E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	4.4E-08	---	4.4E-08	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	3.3E-07	---	3.3E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	4.7E-04	---	4.7E-04		---	---	---	---
		Exposure Point Total					4.7E-04					---
	Surface Soil Total						1.5E-02					---
Soil Total							1.5E-02					---

Total Risk Across All Media: 1.5E-02

Total Hazard Across All Media: ---

TABLE A-9.1j-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	8.9E-08	---	1.5E-08	1.0E-07	---	---	---	---	---
			Benzo(a)pyrene	6.3E-07	---	1.1E-07	7.4E-07	---	---	---	---	---
			Benzo(b)fluoranthene	7.4E-08	---	1.3E-08	8.6E-08	---	---	---	---	---
			Benzo(k)fluoranthene	5.6E-09	---	9.5E-10	6.5E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.0E-07	---	3.4E-08	2.3E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.4E-08	---	7.6E-09	5.2E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.3E-06	---	2.3E-07	1.5E-06	Eyes, Immune system	0.25	---	0.046	0.29
			Aroclor-1260	6.7E-08	---	1.2E-08	7.9E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0039	---	---	0.0039
			Antimony	---	---	---	---	Blood	0.00095	---	---	0.00095
			Arsenic	4.0E-07	---	1.6E-08	4.1E-07	Skin	0.0069	---	0.00027	0.0071
			Cadmium	---	---	---	---	Kidney	0.0015	---	0.000079	0.0016
			Chromium Total	3.8E-04	---	---	3.8E-04	None observed	2.0	---	---	2.0
			Cobalt	---	---	---	---	Thyroid	0.0092	---	---	0.0092
			Iron	---	---	---	---	Gastrointestinal	0.0080	---	---	0.0080
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0017	---	---	0.0017
			Mercury	---	---	---	---	Nervous system	0.00046	---	---	0.00046
			Nickel	---	---	---	---	Body weight	0.041	---	---	0.041
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.021	---	---	0.021
			Zinc	---	---	---	---	Blood	0.020	---	---	0.020
			Chemical Total	3.9E-04	---	4.4E-07	3.9E-04		2.4	---	0.046	2.4
		Exposure Point Total					3.9E-04					2.4
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs	---								
			Benzo(a)anthracene	---	4.5E-12	---	4.5E-12	---	---	---	---	---
			Benzo(a)pyrene	---	3.2E-11	---	3.2E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.7E-12	---	3.7E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.8E-12	---	2.8E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.2E-12	---	2.2E-12	---	---	---	---	---

TABLE A-9.1j-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs	---								
			Aroclor-1254	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Aroclor-1260	---	6.4E-12	---	6.4E-12	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.00026	---	0.00026
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	3.8E-10	---	3.8E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000046	---	0.000046
			Cadmium	---	1.2E-10	---	1.2E-10	Kidney	---	0.000050	---	0.000050
			Chromium Total	---	2.2E-05	---	2.2E-05	Respiratory tract	---	0.020	---	0.020
			Cobalt	---	1.1E-09	---	1.1E-09	Respiratory tract	---	0.00015	---	0.00015
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00082	---	0.00082
			Mercury	---	---	---	---	Nervous system	---	0.000000083	---	0.000000083
			Nickel	---	9.1E-09	---	9.1E-09	Respiratory tract	---	0.0030	---	0.0030
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	6.92E-08	---	6.92E-08	Larynx	---	0.0092	---	0.0092
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	2.2E-05	---	2.2E-05		---	0.034	---	0.034
		Exposure Point Total					2.2E-05					0.034
	Surface Soil Total						4.1E-04					2.4
Soil Total							4.1E-04					2.4

Total Risk Across All Media	4.1E-04
Total Hazard Across All Media	2.4
Total Eye HI Across All Media	0.29
Total Immune System HI Across All Media	0.29
Total Nervous System HI Across All Media	0.0072
Total Blood HI Across All Media	0.021
Total Skin HI Across All Media	0.0072
Total Kidney HI Across All Media	0.0016
Total Thyroid HI Across All Media	0.0092
Total Gastrointestinal HI Across All Media	0.0080
Total Body Weight HI Across All Media	0.041
Total Hair HI Across All Media	0.021
Total Developmental HI Across All Media	0.000046
Total Cardiovascular HI Across All Media	0.000046
Total Lung/Respiratory Tract HI Across All Media	0.032

TABLE A-9.1j-9 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	4.4E-08	---	1.9E-08	6.3E-08	---	---	---	---	---
			Benzo(a)pyrene	3.1E-07	---	1.3E-07	4.5E-07	---	---	---	---	---
			Benzo(b)fluoranthene	3.6E-08	---	1.6E-08	5.2E-08	---	---	---	---	---
			Benzo(k)fluoranthene	2.7E-09	---	1.2E-09	3.9E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	9.8E-08	---	4.3E-08	1.4E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	2.2E-08	---	9.5E-09	3.1E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	2.1E-07	---	9.7E-08	3.1E-07	Eyes, Immune system	0.036	---	0.017	0.053
			Aroclor-1260	1.1E-08	---	5.1E-09	1.6E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00057	---	---	0.00057
			Antimony	---	---	---	---	Blood	0.00014	---	---	0.00014
			Arsenic	6.5E-08	---	6.5E-09	7.2E-08	Skin	0.0010	---	0.00010	0.0011
			Cadmium	---	---	---	---	Kidney	0.00022	---	0.000030	0.00025
			Chromium Total	1.9E-04	---	---	1.9E-04	None observed	0.29	---	---	0.29
			Cobalt	---	---	---	---	Thyroid	0.0014	---	---	0.0014
			Iron	---	---	---	---	Gastrointestinal	0.0012	---	---	0.0012
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00026	---	---	0.00026
			Mercury	---	---	---	---	Nervous system	0.000068	---	---	0.000068
			Nickel	---	---	---	---	Body weight	0.0060	---	---	0.0060
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0031	---	---	0.0031
			Zinc	---	---	---	---	Blood	0.0030	---	---	0.0030
			Chemical Total	1.9E-04	---	3.3E-07	1.9E-04		0.35	---	0.017	0.36
		Exposure Point Total					1.9E-04					0.36
		Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	3.1E-13	---	3.1E-13	---	---	---	---	---
			Benzo(a)pyrene	---	2.2E-12	---	2.2E-12	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.5E-13	---	2.5E-13	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.9E-13	---	1.9E-13	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	7.5E-13	---	7.5E-13	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.5E-13	---	1.5E-13	---	---	---	---	---

TABLE A-9.1j-9 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Air at Risk Area J	PCBs									
			Aroclor-1254	---	2.8E-12	---	2.8E-12	---	---	---	---	---
			Aroclor-1260	---	1.5E-13	---	1.5E-13	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0000054	---	0.0000054
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	8.7E-12	---	8.7E-12	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00000095	---	0.00000095
			Cadmium	---	2.7E-12	---	2.7E-12	Kidney	---	0.0000010	---	0.0000010
			Chromium Total	---	1.5E-06	---	1.5E-06	Respiratory tract	---	0.00041	---	0.00041
			Cobalt	---	2.4E-11	---	2.4E-11	Respiratory tract	---	0.0000032	---	0.0000032
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.000017	---	0.000017
			Mercury	---	---	---	---	Nervous system	---	0.0000000017	---	0.0000000017
			Nickel	---	2.1E-10	---	2.1E-10	Respiratory tract	---	0.000062	---	0.000062
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	1.6E-09	---	1.6E-09	Larynx	---	0.00019	---	0.00019
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.5E-06	---	1.5E-06		---	0.00069	---	0.00069
		Exposure Point Total					1.5E-06					0.00069
	Surface Soil Total						1.9E-04					0.36
Soil Total							1.9E-04					0.36
Sediment	Sediment	Sediment at Risk Area J	PAHs									
			Benzo(a)anthracene	6.8E-08	---	3.0E-08	9.8E-08	---	---	---	---	---
			Benzo(a)pyrene	7.1E-07	---	3.1E-07	1.0E-06	---	---	---	---	---
			Benzo(b)fluoranthene	1.1E-07	---	4.7E-08	1.6E-07	---	---	---	---	---
			Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	3.3E-09	---	1.4E-09	4.7E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-07	---	5.6E-08	1.8E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.2E-08	---	2.7E-08	8.9E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.6E-08	---	7.6E-09	2.4E-08	Eyes, Immune system	0.0028	---	0.0013	0.0042
			Aroclor-1260	2.6E-08	---	1.2E-08	3.8E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00035	---	---	0.00035
			Arsenic	1.1E-08	---	1.1E-09	1.2E-08	Skin	0.00017	---	0.000017	0.00019
			Chromium Total	2.0E-06	---	---	2.0E-06	None observed	0.0031	---	---	0.0031

TABLE A-9.1j-9 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	Sediment at Risk Area J	Cobalt	---	---	---	---	Thyroid	0.0013	---	---	0.0013
			Iron	---	---	---	---	Gastrointestinal	0.00090	---	---	0.00090
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00026	---	---	0.00026
			Mercury	---	---	---	---	Nervous system	0.00014	---	---	0.00014
			Vanadium	---	---	---	---	Hair	0.00058	---	---	0.00058
			Chemical Total	3.1E-06	---	4.9E-07	3.6E-06		0.0096	---	0.0014	0.011
		Exposure Point Total					3.6E-06					0.011
Sediment Total							3.6E-06					0.011
Surface Water	Surface Water	Surface Water at Risk Area J	PAHs									
			Benzo(a)anthracene	---	---	9.2E-08	9.2E-08	---	---	---	---	---
			Benzo(a)pyrene	---	---	1.8E-06	1.8E-06	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	2.9E-07	2.9E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	1.9E-07	1.9E-07	---	---	---	---	---
			Metals									
			Arsenic	---	---	8.0E-10	8.0E-10	Skin	---	---	0.000012	0.000012
			Cadmium	---	---	---	---	Kidney	---	---	0.00025	0.00025
			Chromium Total	---	---	6.1E-10	6.1E-10	None observed	---	---	0.0015	0.0015
			Cobalt	---	---	---	---	Thyroid	---	---	0.000027	0.000027
			Iron	---	---	---	---	Gastrointestinal	---	---	0.00018	0.00018
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	---	0.0028	0.0028
			Mercury	---	---	---	---	Nervous system	---	---	0.0000055	0.0000055
			Vanadium	---	---	---	---	Hair	---	---	0.00053	0.00053
			Chemical Total	---	---	2.4E-06	2.4E-06		---	---	0.0053	0.0053
		Exposure Point Total					2.4E-06					0.0053
Surface Water Total							2.4E-06					0.0053

TABLE A-9.1j-9 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	2.0E-04
Total Hazard Across All Media	0.38
Total Eye HI Across All Media	0.058
Total Immune System HI Across All Media	0.058
Total Nervous System HI Across All Media	0.0045
Total Blood HI Across All Media	0.0032
Total Skin HI Across All Media	0.0013
Total Kidney HI Across All Media	0.00050
Total Thyroid HI Across All Media	0.0026
Total Gastrointestinal HI Across All Media	0.0023
Total Body Weight HI Across All Media	0.0060
Total Hair HI Across All Media	0.0042
Total Developmental HI Across All Media	0.00000095
Total Cardiovascular HI Across All Media	0.00000095
Total Lung/Respiratory Tract HI Across All Media	0.00067

TABLE A-9.2j-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	Liver	0.00022	---	0.000025	0.00025
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.022	---	0.00076	0.023
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.079	---	0.013	0.091
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0062	---	---	0.0062
			Antimony	---	---	---	---	Blood	0.0016	---	---	0.0016
			Arsenic	---	---	---	---	Skin	0.011	---	0.00037	0.011
			Cadmium	---	---	---	---	Kidney	0.0024	---	0.00011	0.0025
			Chromium Total	---	---	---	---	None observed	0.87	---	---	0.87
			Cobalt	---	---	---	---	Thyroid	0.015	---	---	0.015
			Iron	---	---	---	---	Gastrointestinal	0.014	---	---	0.014
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0026	---	---	0.0026
			Mercury	---	---	---	---	Nervous system	0.0024	---	---	0.0024
			Nickel	---	---	---	---	Body weight	0.019	---	---	0.019
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.022	---	---	0.022
			Zinc	---	---	---	---	Blood	0.0098	---	---	0.0098
			Chemical Total	---	---	---	---		1.1	---	0.014	1.1
		Exposure Point Total					---					1.1
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	---	---	---	---	---

TABLE A-9.2j-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000056	---	0.00000056
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Cobalt	---	---	---	---	Respiratory tract	---	0.00078	---	0.00078
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Nickel	---	---	---	---	Respiratory tract	---	0.0043	---	0.0043
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.028	---	0.028
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.065	---	0.065
		Exposure Point Total					---					0.065
	Aggregate Soil Total						---					1.2
Soil Total							---					1.2

TABLE A-9.2j-1 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	---
Total Hazard Across All Media	1.2
Total Liver HI Across All Media	0.00025
Total Developmental HI Across All Media	0.023
Total Eye HI Across All Media	0.091
Total Immune System HI Across All Media	0.091
Total Nervous System HI Across All Media	0.016
Total Blood HI Across All Media	0.011
Total Skin HI Across All Media	0.011
Total Kidney HI Across All Media	0.0027
Total Thyroid HI Across All Media	0.015
Total Gastrointestinal HI Across All Media	0.014
Total Body Weight HI Across All Media	0.019
Total Hair HI Across All Media	0.022
Total Reproductive HI Across All Media	0.00000056
Total Endocrine HI Across All Media	0.00000056
Total Lung/Respiratory Tract HI Across All Media	0.060
Total Cardiovascular HI Across All Media	0.00022

TABLE A-9.2j-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	Liver	0.0021	---	0.00023	0.0023
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Developmental	0.21	---	0.0070	0.21
			PAHs									
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	0.73	---	0.12	0.85
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.057	---	---	0.057
			Antimony	---	---	---	---	Blood	0.015	---	---	0.015
			Arsenic	---	---	---	---	Skin	0.10	---	0.0034	0.10
			Cadmium	---	---	---	---	Kidney	0.022	---	0.0010	0.023
			Chromium Total	---	---	---	---	None observed	8.1	---	---	8.1
			Cobalt	---	---	---	---	Thyroid	0.14	---	---	0.14
			Iron	---	---	---	---	Gastrointestinal	0.13	---	---	0.13
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.024	---	---	0.024
			Mercury	---	---	---	---	Nervous system	0.022	---	---	0.022
			Nickel	---	---	---	---	Body weight	0.18	---	---	0.18
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.20	---	---	0.20
			Zinc	---	---	---	---	Blood	0.092	---	---	0.092
			Chemical Total	---	---	---	---		10	---	0.13	10
		Exposure Point Total					---					10
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	---	---	---	---	---	---	---	---

TABLE A-9.2j-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	---	---	---	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000056	---	0.00000056
			PAHs	---								
			Benzo(a)anthracene	---	---	---	---	---	---	---	---	---
			Benzo(a)pyrene	---	---	---	---	---	---	---	---	---
			Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	---
			Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	---	---	---	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	---	---	---	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Aroclor-1260	---	---	---	---	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	---	0.0012	---	0.0012
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	---	---	---	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.00022	---	0.00022
			Cadmium	---	---	---	---	Kidney	---	0.00024	---	0.00024
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Cobalt	---	---	---	---	Respiratory tract	---	0.00078	---	0.00078
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.0037	---	0.0037
			Mercury	---	---	---	---	Nervous system	---	0.0000013	---	0.0000013
			Nickel	---	---	---	---	Respiratory tract	---	0.0043	---	0.0043
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Larynx	---	0.028	---	0.028
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	---	---	---		---	0.065	---	0.065
		Exposure Point Total					---					0.065
	Aggregate Soil Total						---					10
Soil Total							---					10

TABLE A-9.2j-2 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	---
Total Hazard Across All Media	10
Total Liver HI Across All Media	0.0023
Total Developmental HI Across All Media	0.21
Total Eye HI Across All Media	0.85
Total Immune System HI Across All Media	0.85
Total Nervous System HI Across All Media	0.11
Total Blood HI Across All Media	0.11
Total Skin HI Across All Media	0.10
Total Kidney HI Across All Media	0.024
Total Thyroid HI Across All Media	0.14
Total Gastrointestinal HI Across All Media	0.13
Total Body Weight HI Across All Media	0.18
Total Hair HI Across All Media	0.20
Total Reproductive HI Across All Media	0.00000056
Total Endocrine HI Across All Media	0.00000056
Total Lung/Respiratory Tract HI Across All Media	0.060
Total Cardiovascular HI Across All Media	0.00022

TABLE A-9.2j-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	6.5E-08	---	7.4E-09	7.3E-08	---	---	---	---	---
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.1E-06	---	3.6E-08	1.1E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.3E-06	---	3.3E-07	2.6E-06	---	---	---	---	---
			Benzo(a)pyrene	1.8E-05	---	2.7E-06	2.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.1E-06	---	3.1E-07	2.4E-06	---	---	---	---	---
			Benzo(k)fluoranthene	1.6E-07	---	2.3E-08	1.8E-07	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	4.2E-06	---	6.1E-07	4.8E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.5E-06	---	2.2E-07	1.7E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.2E-06	---	1.8E-07	1.3E-06	---	---	---	---	---
			Aroclor-1260	1.3E-07	---	2.1E-08	1.6E-07	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	1.8E-06	---	6.0E-08	1.8E-06	---	---	---	---	---
			Cadmium	---	---	---	---	---	---	---	---	---
			Chromium Total	3.9E-03	---	---	3.9E-03	---	---	---	---	---
			Cobalt	---	---	---	---	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	---	---	---	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	3.9E-03	---	4.5E-06	3.9E-03		---	---	---	---
		Exposure Point Total					3.9E-03					---
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	6.7E-12	---	6.7E-12	---	---	---	---	---

TABLE A-9.2j-3 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	6.8E-11	---	6.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	5.4E-10	---	5.4E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.3E-11	---	6.3E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.4E-11	---	4.4E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Aroclor-1260	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	---	---	---	---	---
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	1.8E-09	---	1.8E-09	---	---	---	---	---
			Cadmium	---	5.6E-10	---	5.6E-10	---	---	---	---	---
			Chromium Total	---	1.3E-04	---	1.3E-04	---	---	---	---	---
			Cobalt	---	5.4E-09	---	5.4E-09	---	---	---	---	---
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	---	---	---	---	---
			Mercury	---	---	---	---	---	---	---	---	---
			Nickel	---	1.3E-08	---	1.3E-08	---	---	---	---	---
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	2.1E-07	---	2.1E-07	---	---	---	---	---
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.3E-04	---	1.3E-04		---	---	---	---
		Exposure Point Total					1.3E-04					---
	Aggregate Soil Total						4.1E-03					---
Soil Total							4.1E-03					---

Total Risk Across All Media: 4.1E-03

Total Hazard Across All Media: ---

TABLE A-9.2j-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	3.0E-09	---	3.9E-10	3.3E-09	Liver	0.000029	---	0.0000038	0.000032
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	4.8E-08	---	1.9E-09	5.0E-08	Developmental	0.0029	---	0.00011	0.0030
			PAHs									
			Benzo(a)anthracene	1.3E-08	---	2.2E-09	1.5E-08	---	---	---	---	---
			Benzo(a)pyrene	1.0E-07	---	1.7E-08	1.2E-07	---	---	---	---	---
			Benzo(b)fluoranthene	1.2E-08	---	2.0E-09	1.4E-08	---	---	---	---	---
			Benzo(k)fluoranthene	8.8E-10	---	1.5E-10	1.0E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	2.3E-08	---	4.0E-09	2.7E-08	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	8.3E-09	---	1.4E-09	9.7E-09	---	---	---	---	---
			PCBs									
			Aroclor-1254	5.2E-08	---	9.6E-09	6.2E-08	Eyes, Immune system	0.010	---	0.0019	0.012
			Aroclor-1260	6.0E-09	---	1.1E-09	7.2E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00079	---	---	0.00079
			Antimony	---	---	---	---	Blood	0.00021	---	---	0.00021
			Arsenic	8.0E-08	---	3.2E-09	8.3E-08	Skin	0.0014	---	0.000055	0.0014
			Cadmium	---	---	---	---	Kidney	0.00031	---	0.000016	0.00032
			Chromium Total	2.2E-05	---	---	2.2E-05	None observed	0.11	---	---	0.11
			Cobalt	---	---	---	---	Thyroid	0.0020	---	---	0.0020
			Iron	---	---	---	---	Gastrointestinal	0.0018	---	---	0.0018
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00034	---	---	0.00034
			Mercury	---	---	---	---	Nervous system	0.00030	---	---	0.00030
			Nickel	---	---	---	---	Body weight	0.0024	---	---	0.0024
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0028	---	---	0.0028
			Zinc	---	---	---	---	Blood	0.0013	---	---	0.0013
			Chemical Total	2.2E-05	---	4.3E-08	2.2E-05		0.14	---	0.0021	0.14
		Exposure Point Total					2.2E-05					0.14
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	2.9E-13	---	2.9E-13	---	---	---	---	---

TABLE A-9.2j-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans	---								
			2,3,7,8-TCDD TEQ	---	4.7E-12	---	4.7E-12	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000000024	---	0.000000024
			PAHs	---								
			Benzo(a)anthracene	---	6.5E-13	---	6.5E-13	---	---	---	---	---
			Benzo(a)pyrene	---	5.1E-12	---	5.1E-12	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.0E-13	---	6.0E-13	---	---	---	---	---
			Benzo(k)fluoranthene	---	4.5E-13	---	4.5E-13	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.3E-12	---	1.3E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.2E-13	---	4.2E-13	---	---	---	---	---
			PCBs	---								
			Aroclor-1254	---	5.0E-12	---	5.0E-12	---	---	---	---	---
			Aroclor-1260	---	5.8E-13	---	5.8E-13	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.000053	---	0.000053
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	7.7E-11	---	7.7E-11	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0000093	---	0.0000093
			Cadmium	---	2.4E-11	---	2.4E-11	Kidney	---	0.000010	---	0.000010
			Chromium Total	---	1.2E-06	---	1.2E-06	Respiratory tract	---	0.0011	---	0.0011
			Cobalt	---	2.3E-10	---	2.3E-10	Respiratory tract	---	0.000033	---	0.000033
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00016	---	0.00016
			Mercury	---	---	---	---	Nervous system	---	0.000000054	---	0.000000054
			Nickel	---	5.5E-10	---	5.5E-10	Respiratory tract	---	0.00018	---	0.00018
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	9.1E-09	---	9.1E-09	Larynx	---	0.0012	---	0.0012
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	1.2E-06	---	1.2E-06		---	0.0028	---	0.0028
		Exposure Point Total					1.2E-06					0.0028
	Aggregate Soil Total						2.3E-05					0.14
Soil Total							2.3E-05					0.14

TABLE A-9.2j-5 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	2.3E-05
Total Hazard Across All Media	0.14
Total Liver HI Across All Media	0.000033
Total Developmental HI Across All Media	0.0030
Total Eye HI Across All Media	0.012
Total Immune System HI Across All Media	0.012
Total Nervous System HI Across All Media	0.0017
Total Blood HI Across All Media	0.0015
Total Skin HI Across All Media	0.0014
Total Kidney HI Across All Media	0.00033
Total Thyroid HI Across All Media	0.0020
Total Gastrointestinal HI Across All Media	0.0018
Total Body Weight HI Across All Media	0.0024
Total Hair HI Across All Media	0.0028
Total Reproductive HI Across All Media	0.000000024
Total Endocrine HI Across All Media	0.000000024
Total Lung/Respiratory Tract HI Across All Media	0.0026
Total Cardiovascular HI Across All Media	0.0000093

TABLE A-9.2j-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	1.4E-08	---	1.9E-09	1.6E-08	Liver	0.00014	---	0.000018	0.00016
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	2.3E-07	---	9.2E-09	2.4E-07	Developmental	0.014	---	0.00055	0.014
			PAHs									
			Benzo(a)anthracene	6.2E-08	---	1.1E-08	7.3E-08	---	---	---	---	---
			Benzo(a)pyrene	4.9E-07	---	8.5E-08	5.8E-07	---	---	---	---	---
			Benzo(b)fluoranthene	5.7E-08	---	9.8E-09	6.7E-08	---	---	---	---	---
			Benzo(k)fluoranthene	4.3E-09	---	7.4E-10	5.0E-09	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	1.1E-07	---	2.0E-08	1.3E-07	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.0E-08	---	6.9E-09	4.7E-08	---	---	---	---	---
			PCBs									
			Aroclor-1254	2.5E-07	---	4.7E-08	3.0E-07	Eyes, Immune system	0.049	---	0.0091	0.058
			Aroclor-1260	2.9E-08	---	5.4E-09	3.5E-08	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.0038	---	---	0.0038
			Antimony	---	---	---	---	Blood	0.0010	---	---	0.0010
			Arsenic	3.9E-07	---	1.5E-08	4.0E-07	Skin	0.0067	---	0.00027	0.0070
			Cadmium	---	---	---	---	Kidney	0.0015	---	0.000079	0.0016
			Chromium Total	1.1E-04	---	---	1.1E-04	None observed	0.55	---	---	0.55
			Cobalt	---	---	---	---	Thyroid	0.010	---	---	0.010
			Iron	---	---	---	---	Gastrointestinal	0.0090	---	---	0.0090
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.0016	---	---	0.0016
			Mercury	---	---	---	---	Nervous system	0.0015	---	---	0.0015
			Nickel	---	---	---	---	Body weight	0.012	---	---	0.012
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.014	---	---	0.014
			Zinc	---	---	---	---	Blood	0.0061	---	---	0.0061
			Chemical Total	1.1E-04	---	2.1E-07	1.1E-04		0.68	---	0.010	0.69
		Exposure Point Total					1.1E-04					0.69
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	1.4E-12	---	1.4E-12	---	---	---	---	---

TABLE A-9.2j-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans	---								
			2,3,7,8-TCDD TEQ	---	2.3E-11	---	2.3E-11	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.00000012	---	0.00000012
			PAHs	---								
			Benzo(a)anthracene	---	3.1E-12	---	3.1E-12	---	---	---	---	---
			Benzo(a)pyrene	---	2.5E-11	---	2.5E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.9E-12	---	2.9E-12	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.2E-12	---	2.2E-12	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.3E-12	---	6.3E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.0E-12	---	2.0E-12	---	---	---	---	---
			PCBs	---								
			Aroclor-1254	---	2.4E-11	---	2.4E-11	---	---	---	---	---
			Aroclor-1260	---	2.8E-12	---	2.8E-12	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.00026	---	0.00026
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	3.7E-10	---	3.7E-10	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.000045	---	0.000045
			Cadmium	---	1.2E-10	---	1.2E-10	Kidney	---	0.000050	---	0.000050
			Chromium Total	---	5.9E-06	---	5.9E-06	Respiratory tract	---	0.0055	---	0.0055
			Cobalt	---	1.1E-09	---	1.1E-09	Respiratory tract	---	0.00016	---	0.00016
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.00077	---	0.00077
			Mercury	---	---	---	---	Nervous system	---	0.00000026	---	0.00000026
			Nickel	---	2.7E-09	---	2.7E-09	Respiratory tract	---	0.00089	---	0.00089
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	4.45E-08	---	4.45E-08	Larynx	---	0.0059	---	0.0059
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	6.0E-06	---	6.0E-06		---	0.014	---	0.014
		Exposure Point Total					6.0E-06					0.014
	Aggregate Soil Total						1.1E-04					0.70
Soil Total							1.1E-04					0.70

TABLE A-9.2j-6 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	1.1E-04
Total Hazard Across All Media	0.70
Total Liver HI Across All Media	0.00016
Total Developmental HI Across All Media	0.015
Total Eye HI Across All Media	0.058
Total Immune System HI Across All Media	0.058
Total Nervous System HI Across All Media	0.0080
Total Blood HI Across All Media	0.0072
Total Skin HI Across All Media	0.0070
Total Kidney HI Across All Media	0.0016
Total Thyroid HI Across All Media	0.0096
Total Gastrointestinal HI Across All Media	0.0090
Total Body Weight HI Across All Media	0.012
Total Hair HI Across All Media	0.014
Total Reproductive HI Across All Media	0.00000012
Total Endocrine HI Across All Media	0.00000012
Total Lung/Respiratory Tract HI Across All Media	0.012
Total Cardiovascular HI Across All Media	0.000045

TABLE A-9.2j-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	3.8E-10	---	1.3E-10	5.0E-10	Liver	0.000033	---	0.000011	0.000044
			Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	6.1E-09	---	6.1E-10	6.8E-09	Developmental	0.0033	---	0.00033	0.0036
			PAHs									
			Benzo(a)anthracene	1.6E-09	---	7.0E-10	2.3E-09	---	---	---	---	---
			Benzo(a)pyrene	1.3E-08	---	5.6E-09	1.9E-08	---	---	---	---	---
			Benzo(b)fluoranthene	1.5E-09	---	6.5E-10	2.2E-09	---	---	---	---	---
			Benzo(k)fluoranthene	1.1E-10	---	4.9E-11	1.6E-10	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	3.0E-09	---	1.3E-09	4.3E-09	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-09	---	4.5E-10	1.5E-09	---	---	---	---	---
			PCBs									
			Aroclor-1254	6.7E-09	---	3.1E-09	9.8E-09	Eyes, Immune system	0.012	---	0.0054	0.017
			Aroclor-1260	7.8E-10	---	3.6E-10	1.1E-09	---	---	---	---	---
			Metals									
			Aluminum	---	---	---	---	Nervous system	0.00091	---	---	0.00091
			Antimony	---	---	---	---	Blood	0.00024	---	---	0.00024
			Arsenic	1.0E-08	---	1.0E-09	1.1E-08	Skin	0.0016	---	0.00016	0.0018
			Cadmium	---	---	---	---	Kidney	0.00036	---	0.000047	0.00040
			Chromium Total	2.8E-06	---	---	2.8E-06	None observed	0.13	---	---	0.13
			Cobalt	---	---	---	---	Thyroid	0.0023	---	---	0.0023
			Iron	---	---	---	---	Gastrointestinal	0.0021	---	---	0.0021
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	0.00039	---	---	0.00039
			Mercury	---	---	---	---	Nervous system	0.00035	---	---	0.00035
			Nickel	---	---	---	---	Body weight	0.0028	---	---	0.0028
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	---	---	---	Hair	0.0032	---	---	0.0032
			Zinc	---	---	---	---	Blood	0.0015	---	---	0.0015
			Chemical Total	2.8E-06	---	1.4E-08	2.8E-06		0.16	---	0.0059	0.17
		Exposure Point Total					2.8E-06					0.17
		Air at Risk Area J	n-Butylbenzene	---	---	---	---	---	---	---	---	---
			sec-Butylbenzene	---	---	---	---	---	---	---	---	---
			Cymene	---	---	---	---	---	---	---	---	---
			Dieldrin	---	1.8E-11	---	1.8E-11	---	---	---	---	---

TABLE A-9.2j-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area J	Dimethyl phthalate	---	---	---	---	---	---	---	---	---
			Di-n-octyl phthalate	---	---	---	---	---	---	---	---	---
			Dioxins/Furans	---								
			2,3,7,8-TCDD TEQ	---	3.0E-10	---	3.0E-10	Liver, Reproductive system, Developmental, Endocrine system, Respiratory tract, Blood	---	0.000014	---	0.000014
			PAHs	---								
			Benzo(a)anthracene	---	4.2E-11	---	4.2E-11	---	---	---	---	---
			Benzo(a)pyrene	---	3.3E-10	---	3.3E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.9E-11	---	2.9E-11	---	---	---	---	---
			Carbazole	---	---	---	---	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.3E-11	---	8.3E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.7E-11	---	2.7E-11	---	---	---	---	---
			PCBs	---								
			Aroclor-1254	---	3.2E-10	---	3.2E-10	---	---	---	---	---
			Aroclor-1260	---	3.7E-11	---	3.7E-11	---	---	---	---	---
			Metals	---								
			Aluminum	---	---	---	---	Nervous system	---	0.031	---	0.031
			Antimony	---	---	---	---	---	---	---	---	---
			Arsenic	---	4.9E-09	---	4.9E-09	Developmental, Cardiovascular system, Nervous system, Lung, Skin	---	0.0054	---	0.0054
			Cadmium	---	1.5E-09	---	1.5E-09	Kidney	---	0.0060	---	0.0060
			Chromium Total	---	7.8E-05	---	7.8E-05	Respiratory tract	---	0.65	---	0.65
			Cobalt	---	1.5E-08	---	1.5E-08	Respiratory tract	---	0.019	---	0.019
			Iron	---	---	---	---	---	---	---	---	---
			Lead	---	---	---	---	---	---	---	---	---
			Manganese	---	---	---	---	Nervous system	---	0.092	---	0.092
			Mercury	---	---	---	---	Nervous system	---	0.000031	---	0.000031
			Nickel	---	3.5E-08	---	3.5E-08	Respiratory tract	---	0.11	---	0.11
			Thallium	---	---	---	---	---	---	---	---	---
			Vanadium	---	5.9E-07	---	5.9E-07	Larynx	---	0.049	---	0.049
			Zinc	---	---	---	---	---	---	---	---	---
			Chemical Total	---	7.9E-05	---	7.9E-05		---	1.0	---	1.0
		Exposure Point Total					7.9E-05					1.0
	Aggregate Soil Total						8.2E-05					1.1
Soil Total							8.2E-05					1.1

TABLE A-9.2j-8 CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

Total Risk Across All Media	8.2E-05
Total Hazard Across All Media	1.1
Total Liver HI Across All Media	0.000058
Total Developmental HI Across All Media	0.0090
Total Eye HI Across All Media	0.017
Total Immune System HI Across All Media	0.017
Total Nervous System HI Across All Media	0.13
Total Blood HI Across All Media	0.0017
Total Skin HI Across All Media	0.0071
Total Kidney HI Across All Media	0.0064
Total Thyroid HI Across All Media	0.0023
Total Gastrointestinal HI Across All Media	0.0021
Total Body Weight HI Across All Media	0.0028
Total Hair HI Across All Media	0.0032
Total Reproductive HI Across All Media	0.000014
Total Endocrine HI Across All Media	0.000014
Total Lung/Respiratory Tract HI Across All Media	0.83
Total Cardiovascular HI Across All Media	0.0054

TABLE A-10.1d1-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	PAHs									
			Benzo(a)anthracene	3.9E-06	---	1.5E-06	5.4E-06	---	---	---	---	---
			Benzo(a)pyrene	4.5E-05	---	1.7E-05	6.2E-05	---	---	---	---	---
			Benzo(b)fluoranthene	6.0E-06	---	2.3E-06	8.3E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.6E-05	---	6.1E-06	2.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.4E-06	---	1.7E-06	6.1E-06	---	---	---	---	---
			Metals									
			Arsenic	9.9E-06	---	9.4E-07	1.1E-05	---	---	---	---	---
			Chromium Total	5.1E-05	---	---	5.1E-05	---	---	---	---	---
			Chemical Total	1.4E-04	---	3.0E-05	1.7E-04		---	---	---	---
		Exposure Point Total					1.7E-04					---
		Air at Risk Area D1	PAHs									
			Benzo(a)anthracene	---	6.5E-11	---	6.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.5E-10	---	7.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.4E-11	---	7.4E-11	---	---	---	---	---
			Metals									
			Arsenic	---	5.4E-09	---	5.4E-09	---	---	---	---	---
			Chromium Total	---	9.5E-07	---	9.5E-07	---	---	---	---	---
			Chemical Total	---	9.5E-07	---	9.5E-07		---	---	---	---
		Exposure Point Total					9.5E-07					---
	Surface Soil Total						1.7E-04					---
Soil Total							1.7E-04					---

Total Risk Across All Media: 1.7E-04

Total Hazard Across All Media: ---

TABLE A-10.2d1-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	PAHs									
			Benzo(a)anthracene	2.7E-06	---	1.0E-06	3.8E-06	---	---	---	---	---
			Benzo(a)pyrene	4.3E-05	---	1.6E-05	5.9E-05	---	---	---	---	---
			Benzo(b)fluoranthene	5.5E-06	---	2.1E-06	7.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	8.6E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-06	---	1.3E-06	4.8E-06	---	---	---	---	---
			Metals									
			Arsenic	8.9E-06	---	8.4E-07	9.7E-06	---	---	---	---	---
			Chromium Total	4.9E-05	---	---	4.9E-05	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.2E-04	---	2.5E-05	1.5E-04		---	---	---	---
		Exposure Point Total					1.5E-04					---
		Air at Risk Area D1	PAHs									
			Benzo(a)anthracene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Benzo(a)pyrene	---	7.2E-10	---	7.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.2E-11	---	9.2E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.8E-11	---	5.8E-11	---	---	---	---	---
			Metals									
			Arsenic	---	4.8E-09	---	4.8E-09	---	---	---	---	---
			Chromium Total	---	9.2E-07	---	9.2E-07	---	---	---	---	---
			Vanadium	---	1.2E-06	---	1.2E-06	---	---	---	---	---
			Chemical Total	---	2.2E-06	---	2.2E-06		---	---	---	---
		Exposure Point Total					2.2E-06					---
	Aggregate Soil Total						1.5E-04					---
Soil Total							1.5E-04					---

Total Risk Across All Media: 1.5E-04

Total Hazard Across All Media: ---

TABLE A-10.2d1-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	Metals									
			Chromium Total	1.8E-07	---	---	1.8E-07	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.8E-07	---	---	1.8E-07		---	---	---	---
		Exposure Point Total					1.8E-07					---
		Air at Risk Area D1	Metals									
			Chromium Total	---	1.5E-06	---	1.5E-06	---	---	---	---	---
			Vanadium	---	5.1E-06	---	5.1E-06	---	---	---	---	---
			Chemical Total	---	6.7E-06	---	6.7E-06		---	---	---	---
		Exposure Point Total					6.7E-06					---
	Aggregate Soil Total						6.8E-06					---
Soil Total							6.8E-06					---

Total Risk Across All Media: 6.8E-06

Total Hazard Across All Media: ---

TABLE A-10.1d1-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D1	PAHs									
			Benzo(a)anthracene	1.2E-06	---	1.7E-07	1.3E-06	---	---	---	---	---
			Benzo(a)pyrene	1.4E-05	---	2.0E-06	1.6E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.8E-06	---	2.7E-07	2.1E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	4.8E-06	---	7.1E-07	5.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-06	---	2.0E-07	1.5E-06	---	---	---	---	---
			Metals									
			Arsenic	1.6E-06	---	5.4E-08	1.6E-06	---	---	---	---	---
			Chromium Total	1.5E-05	---	---	1.5E-05	---	---	---	---	---
			Chemical Total	4.0E-05	---	3.4E-06	4.3E-05		---	---	---	---
		Exposure Point Total					4.3E-05					---
		Air at Risk Area D1	PAHs									
			Benzo(a)anthracene	---	3.5E-11	---	3.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	4.0E-10	---	4.0E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.4E-11	---	5.4E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.0E-11	---	4.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.6E-09	---	1.6E-09	---	---	---	---	---
			Chromium Total	---	5.1E-07	---	5.1E-07	---	---	---	---	---
			Chemical Total	---	5.1E-07	---	5.1E-07		---	---	---	---
		Exposure Point Total					5.1E-07					---
	Surface Soil Total						4.4E-05					---
Soil Total							4.4E-05					---

Total Risk Across All Media: 4.4E-05

Total Hazard Across All Media: ---

TABLE A-10.2d1-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D1	PAHs									
			Benzo(a)pyrene	1.3E-05	---	1.9E-06	1.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.7E-06	---	2.4E-07	1.9E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.6E-06	---	3.8E-07	3.0E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.5E-07	1.2E-06	---	---	---	---	---
			Metals									
			Arsenic	1.4E-06	---	4.8E-08	1.5E-06	---	---	---	---	---
			Chromium Total	1.5E-05	---	---	1.5E-05	---	---	---	---	---
			Chemical Total	3.5E-05	---	2.7E-06	3.7E-05		---	---	---	---
		Exposure Point Total					3.7E-05					---
		Air at Risk Area D1	PAHs									
			Benzo(a)pyrene	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.0E-11	---	5.0E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.4E-11	---	8.4E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.1E-11	---	3.1E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.4E-09	---	1.4E-09	---	---	---	---	---
			Chromium Total	---	5.0E-07	---	5.0E-07	---	---	---	---	---
			Chemical Total	---	5.0E-07	---	5.0E-07		---	---	---	---
		Exposure Point Total					5.0E-07					---
	Aggregate Soil Total						3.8E-05					---
Soil Total							3.8E-05					---

Total Risk Across All Media: 3.8E-05

Total Hazard Across All Media: ---

TABLE A-10.1d3-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	9.7E-07	---	8.3E-07	1.8E-06	---	---	---	---	---
			Benzo(a)pyrene	9.7E-06	---	8.3E-06	1.8E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.4E-06	---	1.2E-06	2.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	7.9E-07	---	6.8E-07	1.5E-06	---	---	---	---	---
			Metals									
			Arsenic	6.2E-06	---	1.2E-06	7.4E-06	---	---	---	---	---
			Chromium Total	5.2E-06	---	---	5.2E-06	---	---	---	---	---
			Chemical Total	2.4E-05	---	1.2E-05	3.7E-05		---	---	---	---
		Exposure Point Total					3.7E-05					---
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	2.5E-11	---	2.5E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.6E-11	---	3.6E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.2E-11	---	2.2E-11	---	---	---	---	---
			Metals									
			Arsenic	---	3.0E-09	---	3.0E-09	---	---	---	---	---
			Chromium Total	---	1.5E-07	---	1.5E-07	---	---	---	---	---
			Chemical Total	---	1.5E-07	---	1.5E-07		---	---	---	---
		Exposure Point Total					1.5E-07					---
	Surface Soil Total						3.7E-05					---
Soil Total							3.7E-05					---

Total Risk Across All Media: 3.7E-05

Total Hazard Across All Media: ---

TABLE A-10.2d3-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)anthracene	7.8E-07	---	6.7E-07	1.4E-06	---	---	---	---	---
			Benzo(a)pyrene	8.7E-06	---	7.4E-06	1.6E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.3E-06	---	1.1E-06	2.3E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-06	---	2.5E-06	5.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.0E-07	---	5.2E-07	1.1E-06	---	---	---	---	---
			Metals									
			Arsenic	3.9E-06	---	7.8E-07	4.7E-06	---	---	---	---	---
			Chromium Total	2.9E-06	---	---	2.9E-06	---	---	---	---	---
			Chemical Total	2.1E-05	---	1.3E-05	3.4E-05		---	---	---	---
		Exposure Point Total					3.4E-05					---
		Air at Risk Area D3	PAHs									
			Benzo(a)anthracene	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.2E-11	---	3.2E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Chromium Total	---	8.3E-08	---	8.3E-08	---	---	---	---	---
			Chemical Total	---	8.5E-08	---	8.5E-08		---	---	---	---
		Exposure Point Total					8.5E-08					---
	Aggregate Soil Total						3.4E-05					---
Soil Total							3.4E-05					---

Total Risk Across All Media: 3.4E-05

Total Hazard Across All Media: ---

TABLE A-10.2d3-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Air at Risk Area D3	Metals									
			Chromium Total	2.0E-07	---	---	2.0E-07	---	---	---	---	---
			Chemical Total	2.0E-07	---	---	2.0E-07		---	---	---	---
		Exposure Point Total					2.0E-07					---
		Air at Risk Area D3	Metals									
			Chromium Total	---	1.7E-06	---	1.7E-06	---	---	---	---	---
			Chemical Total	---	1.7E-06	---	1.7E-06		---	---	---	---
		Exposure Point Total					1.7E-06					---
	Aggregate Soil Total						1.9E-06					---
Soil Total							1.9E-06					---

Total Risk Across All Media: 1.9E-06

Total Hazard Across All Media: ---

TABLE A-10.1d3-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area D3	PAHs									
			Benzo(a)pyrene	1.5E-06	---	2.6E-07	1.8E-06	---	---	---	---	---
			Chemical Total	1.5E-06	---	2.6E-07	1.8E-06		---	---	---	---
		Exposure Point Total					1.8E-06					---
		Air at Risk Area D3	PAHs									
			Benzo(a)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Chemical Total	---	7.7E-11	---	7.7E-11		---	---	---	---
		Exposure Point Total					7.7E-11					---
	Surface Soil Total						1.8E-06					---
Soil Total							1.8E-06					---

Total Risk Across All Media: 1.8E-06

Total Hazard Across All Media: ---

TABLE A-10.2d3-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA D3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area D3	PAHs									
			Benzo(a)pyrene	1.4E-06	---	2.3E-07	1.6E-06	---	---	---	---	---
			Chemical Total	1.4E-06	---	2.3E-07	1.6E-06		---	---	---	---
		Exposure Point Total					1.6E-06					---
		Air at Risk Area D3	PAHs									
			Benzo(a)pyrene	---	6.9E-11	---	6.9E-11	---	---	---	---	---
			Chemical Total	---	6.9E-11	---	6.9E-11		---	---	---	---
		Exposure Point Total					6.9E-11					---
	Aggregate Soil Total						1.6E-06					---
Soil Total							1.6E-06					---

Total Risk Across All Media: 1.6E-06

Total Hazard Across All Media: ---

TABLE A-10.1e1-1 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)pyrene	5.1E-06	---	2.7E-06	7.8E-06	---	---	---	---	---
			Metals									
			Arsenic	2.5E-06	---	3.0E-07	2.8E-06	---	---	---	---	---
			Chromium Total	4.0E-06	---	---	4.0E-06	---	---	---	---	---
			Chemical Total	1.2E-05	---	3.0E-06	1.5E-05		---	---	---	---
		Exposure Point Total					1.5E-05					---
		Air at Risk Area E1	PAHs									
			Benzo(a)pyrene	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Metals									
			Arsenic	---	3.6E-09	---	3.6E-09	---	---	---	---	---
			Chromium Total	---	3.4E-07	---	3.4E-07	---	---	---	---	---
			Chemical Total	---	3.4E-07	---	3.4E-07		---	---	---	---
		Exposure Point Total					3.4E-07					---
	Surface Soil Total						1.5E-05					---
Soil Total							1.5E-05					---

Total Risk Across All Media: 1.5E-05

Total Hazard Across All Media: ---

TABLE A-10.1e1-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)anthracene	8.9E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	7.3E-05	---	2.8E-05	1.0E-04	---	---	---	---	---
			Benzo(b)fluoranthene	5.1E-06	---	2.0E-06	7.0E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	8.6E-06	---	3.3E-06	1.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.2E-06	---	1.6E-06	5.8E-06	---	---	---	---	---
			Metals									
			Arsenic	8.2E-06	---	7.8E-07	9.0E-06	---	---	---	---	---
			Chromium Total	5.7E-05	---	---	5.7E-05	---	---	---	---	---
			Chemical Total	1.7E-04	---	3.9E-05	2.0E-04		---	---	---	---
		Exposure Point Total					2.0E-04					---
		Air at Risk Area E1	PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.5E-11	---	8.5E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.0E-11	---	7.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	4.5E-09	---	4.5E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	1.1E-06	---	1.1E-06		---	---	---	---
		Exposure Point Total					1.1E-06					---
	Surface Soil Total						2.1E-04					---
Soil Total							2.1E-04					---

Total Risk Across All Media: 2.1E-04

Total Hazard Across All Media: ---

TABLE A-10.1e1-4 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)anthracene	3.5E-06	---	1.3E-06	4.7E-06	---	---	---	---	---
			Benzo(a)pyrene	2.8E-05	---	1.0E-05	3.9E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.0E-06	---	7.2E-07	2.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	3.3E-06	---	1.2E-06	4.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-06	---	5.9E-07	2.2E-06	---	---	---	---	---
			Metals									
			Arsenic	2.6E-06	---	2.2E-07	2.8E-06	---	---	---	---	---
			Chromium Total	2.2E-05	---	---	2.2E-05	---	---	---	---	---
			Chemical Total	6.3E-05	---	1.4E-05	7.8E-05		---	---	---	---
		Exposure Point Total					7.8E-05					---
		Air at Risk Area E1	PAHs									
			Benzo(a)anthracene	---	9.3E-12	---	9.3E-12	---	---	---	---	---
			Benzo(a)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.3E-12	---	5.3E-12	---	---	---	---	---
			Dibenz(a,h)anthracene	---	9.8E-12	---	9.8E-12	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.4E-12	---	4.4E-12	---	---	---	---	---
			Metals									
			Arsenic	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Chromium Total	---	6.6E-08	---	6.6E-08	---	---	---	---	---
			Chemical Total	---	6.6E-08	---	6.6E-08		---	---	---	---
		Exposure Point Total					6.6E-08					---
	Surface Soil Total						7.8E-05					---
Soil Total							7.8E-05					---

Total Risk Across All Media: 7.8E-05

Total Hazard Across All Media: ---

TABLE A-10.1e1-5 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)pyrene	3.4E-06	---	3.0E-06	6.4E-06	---	---	---	---	---
			Metals									
			Arsenic	1.7E-06	---	3.3E-07	2.0E-06	---	---	---	---	---
			Chromium Total	2.7E-06	---	---	2.7E-06	---	---	---	---	---
			Chemical Total	7.8E-06	---	3.3E-06	1.1E-05		---	---	---	---
		Exposure Point Total					1.1E-05					---
		Air at Risk Area E1	PAHs									
			Benzo(a)pyrene	---	8.7E-11	---	8.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	7.9E-10	---	7.9E-10	---	---	---	---	---
			Chromium Total	---	7.5E-08	---	7.5E-08	---	---	---	---	---
			Chemical Total	---	7.6E-08	---	7.6E-08		---	---	---	---
		Exposure Point Total					7.6E-08					---
	Surface Soil Total						1.1E-05					---
Soil Total							1.1E-05					---

Total Risk Across All Media: 1.1E-05

Total Hazard Across All Media: ---

TABLE A-10.2e1-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	bis(2-Chloroethyl)ether	6.5E-07	---	---			---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	2.3E-06	---	2.2E-07	2.5E-06	---	---	---	---	---
			Hexachlorobenzene	9.4E-07	---	3.0E-07	1.2E-06	---	---	---	---	---
			N-Nitrosodi-n-propylamine	4.1E-06	---	1.3E-06	5.4E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.7E-05	---	1.0E-05	3.7E-05	---	---	---	---	---
			Benzo(a)pyrene	2.4E-04	---	9.0E-05	3.3E-04	---	---	---	---	---
			Benzo(b)fluoranthene	3.5E-05	---	1.3E-05	4.8E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.4E-06	---	5.2E-07	1.9E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.0E-05	---	4.0E-06	1.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.2E-06	---	2.0E-06	7.2E-06	---	---	---	---	---
			Metals									
			Arsenic	7.8E-06	---	7.4E-07	8.6E-06	---	---	---	---	---
			Chromium Total	6.0E-05	---	---	6.0E-05	---	---	---	---	---
			Chemical Total	3.9E-04	---	1.2E-04	5.1E-04		---	---	---	---
		Exposure Point Total					5.1E-04					---
		Air at Risk Area E1	bis(2-Chloroethyl)ether	---	1.14E-06	---	1.1E-06	---	---	---	---	---
			Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Hexachlorobenzene	---	5.1E-11	---	5.1E-11	---	---	---	---	---
			N-Nitrosodi-n-propylamine	---	2.2E-10	---	2.2E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	4.5E-10	---	4.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	3.9E-09	---	3.9E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.8E-10	---	5.8E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	8.7E-11	---	8.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	4.2E-09	---	4.2E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	2.3E-06	---	2.3E-06		---	---	---	---
		Exposure Point Total					2.3E-06					---
	Aggregate Soil Total						5.2E-04					---
Soil Total							5.2E-04					---

Total Risk Across All Media: 5.2E-04

Total Hazard Across All Media: ---

TABLE A-10.2e1-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	Metals									
			Chromium Total	2.2E-07	---	---	2.2E-07	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	2.2E-07	---	---	2.2E-07		---	---	---	---
		Exposure Point Total					2.2E-07					---
		Air at Risk Area E1	Metals									
			Chromium Total	---	1.9E-06	---	1.9E-06	---	---	---	---	---
			Vanadium	---	4.2E-06	---	4.2E-06	---	---	---	---	---
			Chemical Total	---	6.0E-06	---	6.0E-06		---	---	---	---
		Exposure Point Total					6.0E-06					---
	Aggregate Soil Total						6.2E-06					---
Soil Total							6.2E-06					---

Total Risk Across All Media: 6.2E-06

Total Hazard Across All Media: ---

TABLE A-10.1e1-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)anthracene	2.7E-06	---	3.9E-07	3.1E-06	---	---	---	---	---
			Benzo(a)pyrene	2.2E-05	---	3.2E-06	2.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.5E-06	---	2.2E-07	1.8E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.6E-06	---	3.8E-07	3.0E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.3E-06	---	1.8E-07	1.4E-06	---	---	---	---	---
			Metals									
			Arsenic	1.3E-06	---	4.5E-08	1.4E-06	---	---	---	---	---
			Chromium Total	1.7E-05	---	---	1.7E-05	---	---	---	---	---
			Chemical Total	4.9E-05	---	4.5E-06	5.3E-05		---	---	---	---
		Exposure Point Total					5.3E-05					---
		Air at Risk Area E1	PAHs									
			Benzo(a)anthracene	---	8.0E-11	---	8.0E-11	---	---	---	---	---
			Benzo(a)pyrene	---	6.6E-10	---	6.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	8.4E-11	---	8.4E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.8E-11	---	3.8E-11	---	---	---	---	---
			Metals	---		---						
			Arsenic	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Chromium Total	---	5.7E-07	---	5.7E-07	---	---	---	---	---
			Chemical Total	---	5.7E-07	---	5.7E-07		---	---	---	---
		Exposure Point Total					5.7E-07					---
	Surface Soil Total						5.4E-05					---
Soil Total							5.4E-05					---

Total Risk Across All Media: 5.4E-05

Total Hazard Across All Media: ---

TABLE A-10.1e1-4 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Recreational Visitor
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E1	PAHs									
			Benzo(a)pyrene	4.5E-06	---	6.5E-07	5.1E-06	---	---	---	---	---
			Metals									
			Chromium Total	3.4E-06	---	---	3.4E-06	---	---	---	---	---
			Chemical Total	7.9E-06	---	6.5E-07	8.5E-06		---	---	---	---
		Exposure Point Total					8.5E-06					---
		Air at Risk Area E1	PAHs									
			Benzo(a)pyrene	---	1.2E-11	---	1.2E-11	---	---	---	---	---
			Metals									
			Chromium Total	---	1.0E-08	---	1.0E-08	---	---	---	---	---
			Chemical Total	---	1.0E-08	---	1.0E-08		---	---	---	---
		Exposure Point Total					1.0E-08					---
Soil	Surface Soil Total						8.6E-06					---
Soil Total							8.6E-06					---

Total Risk Across All Media: 8.6E-06

Total Hazard Across All Media: ---

TABLE A-10.2e1-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E1
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E1	PAHs									
			Benzo(a)anthracene	8.1E-06	---	1.2E-06	9.3E-06	---	---	---	---	---
			Benzo(a)pyrene	7.1E-05	---	1.0E-05	8.2E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.1E-05	---	1.5E-06	1.2E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	3.1E-06	---	4.6E-07	3.6E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-06	---	2.3E-07	1.8E-06	---	---	---	---	---
			Metals									
			Arsenic	1.3E-06	---	4.2E-08	1.3E-06	---	---	---	---	---
			Chromium Total	1.8E-05	---	---	1.8E-05	---	---	---	---	---
			Chemical Total	1.1E-04	---	1.4E-05	1.3E-04		---	---	---	---
		Exposure Point Total					1.3E-04					---
		Air at Risk Area E1	PAHs									
			Benzo(a)anthracene	---	2.4E-10	---	2.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.1E-09	---	2.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Chromium Total	---	6.1E-07	---	6.1E-07	---	---	---	---	---
			Chemical Total	---	6.1E-07	---	6.1E-07		---	---	---	---
		Exposure Point Total					6.1E-07					---
	Aggregate Soil Total						1.3E-04					---
Soil Total							1.3E-04					---

Total Risk Across All Media: 1.3E-04

Total Hazard Across All Media: ---

TABLE A-10.1e2-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	PAHs									
			Benzo(a)pyrene	2.1E-06	---	1.8E-06	3.9E-06	---	---	---	---	---
			Metals									
			Arsenic	1.5E-06	---	2.9E-07	1.8E-06	---	---	---	---	---
			Chromium Total	2.3E-06	---	---	2.3E-06	---	---	---	---	---
			Chemical Total	5.9E-06	---	2.1E-06	8.0E-06		---	---	---	---
		Exposure Point Total					8.0E-06					---
		Air at Risk Area E2	PAHs									
			Benzo(a)pyrene	---	5.3E-11	---	5.3E-11	---	---	---	---	---
			Metals									
			Arsenic	---	7.1E-10	---	7.1E-10	---	---	---	---	---
			Chromium Total	---	6.5E-08	---	6.5E-08	---	---	---	---	---
			Chemical Total	---	6.5E-08	---	6.5E-08		---	---	---	---
		Exposure Point Total					6.5E-08					---
	Surface Soil Total						8.0E-06					---
Soil Total							8.0E-06					---

Total Risk Across All Media: 8.0E-06

Total Hazard Across All Media: ---

TABLE A-10.1e2-7 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	PAHs									
			Benzo(a)anthracene	2.0E-06	---	7.4E-07	2.8E-06	---	---	---	---	---
			Benzo(a)pyrene	1.7E-05	---	6.3E-06	2.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	3.1E-06	---	1.1E-06	4.3E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	3.7E-06	---	1.3E-06	5.1E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.7E-06	---	6.0E-07	2.3E-06	---	---	---	---	---
			Metals									
			Arsenic	2.8E-06	---	2.3E-07	3.0E-06	---	---	---	---	---
			Chromium Total	1.9E-05	---	---	1.9E-05	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	4.9E-05	---	1.0E-05	6.0E-05		---	---	---	---
		Exposure Point Total					6.0E-05					---
		Air at Risk Area E2	PAHs									
			Benzo(a)anthracene	---	5.5E-12	---	5.5E-12	---	---	---	---	---
			Benzo(a)pyrene	---	4.6E-11	---	4.6E-11	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.4E-12	---	8.4E-12	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-11	---	1.1E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.5E-12	---	4.5E-12	---	---	---	---	---
			Metals									
			Arsenic	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Chromium Total	---	5.6E-08	---	5.6E-08	---	---	---	---	---
			Vanadium	---	5.2E-09	---	5.2E-09	---	---	---	---	---
			Chemical Total	---	6.2E-08	---	6.2E-08		---	---	---	---
		Exposure Point Total					6.2E-08					---
	Surface Soil Total						6.0E-05					---
Soil Total							6.0E-05					---

Total Risk Across All Media: 6.0E-05

Total Hazard Across All Media: ---

TABLE A-10.2e2-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	PAHs									
			Benzo(a)pyrene	4.8E-06	---	4.2E-06	9.0E-06	---	---	---	---	---
			Benzo(b)fluoranthene	6.4E-07	---	5.5E-07	1.2E-06	---	---	---	---	---
			Metals									
			Arsenic	2.2E-06	---	4.4E-07	2.7E-06	---	---	---	---	---
			Chromium Total	2.3E-06	---	---	2.3E-06	---	---	---	---	---
			Chemical Total	1.0E-05	---	5.2E-06	1.5E-05		---	---	---	---
		Exposure Point Total					1.5E-05					---
		Air at Risk Area E2	PAHs									
			Benzo(a)pyrene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.6E-11	---	1.6E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Chromium Total	---	6.4E-08	---	6.4E-08	---	---	---	---	---
			Chemical Total	---	6.6E-08	---	6.6E-08		---	---	---	---
		Exposure Point Total					6.6E-08					---
	Aggregate Soil Total						1.5E-05					---
Soil Total							1.5E-05					---

Total Risk Across All Media: 1.5E-05

Total Hazard Across All Media: ---

TABLE A-10.2e2-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E2	Metals									
			Chromium Total	1.6E-07	---	---	1.6E-07	---	---	---	---	---
			Chemical Total	1.6E-07	---	---	1.6E-07		---	---	---	---
		Exposure Point Total					1.6E-07					---
		Air at Risk Area E2	Metals									
			Chromium Total	---	1.3E-06	---	1.3E-06	---	---	---	---	---
			Chemical Total	---	1.3E-06	---	1.3E-06		---	---	---	---
		Exposure Point Total					1.3E-06					---
	Aggregate Soil Total						1.5E-06					---
Soil Total							1.5E-06					---

Total Risk Across All Media: 1.5E-06

Total Hazard Across All Media: ---

TABLE A-10.1e2-7 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E2
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Day Care Child
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E2	PAHs									
			Benzo(a)pyrene	1.5E-06	---	2.1E-07	1.7E-06	---	---	---	---	---
			Metals									
			Chromium Total	1.6E-06	---	---	1.6E-06	---	---	---	---	---
			Chemical Total	3.1E-06	---	2.1E-07	3.3E-06		---	---	---	---
		Exposure Point Total					3.3E-06					---
		Air at Risk Area E2	PAHs									
			Benzo(a)pyrene	---	3.9E-12	---	3.9E-12	---	---	---	---	---
			Metals									
			Chromium Total	---	4.8E-09	---	4.8E-09	---	---	---	---	---
			Chemical Total	---	---	---	4.8E-09		---	---	---	---
		Exposure Point Total					4.8E-09					---
	Surface Soil Total						3.3E-06					---
Soil Total							3.3E-06					---

Total Risk Across All Media: 3.3E-06

Total Hazard Across All Media: ---

TABLE A-10.1e3-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	PAHs					---				
			Benzo(a)anthracene	9.0E-06	---	3.5E-06	1.2E-05	---	---	---	---	---
			Benzo(a)pyrene	6.8E-05	---	2.6E-05	9.5E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.0E-06	---	3.1E-06	1.1E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-05	---	4.8E-06	1.7E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.7E-06	---	1.8E-06	6.6E-06	---	---	---	---	---
			Metals					---				
			Arsenic	1.0E-05	---	9.8E-07	1.1E-05	---	---	---	---	---
			Chromium Total	6.8E-05	---	---	6.8E-05	---	---	---	---	---
			Chemical Total	1.8E-04	---	4.0E-05	2.2E-04		---	---	---	---
		Exposure Point Total					2.2E-04					---
		Air at Risk Area E3	PAHs					---				
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.3E-10	---	2.3E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Metals					---				
			Arsenic	---	5.6E-09	---	5.6E-09	---	---	---	---	---
			Chromium Total	---	1.3E-06	---	1.3E-06	---	---	---	---	---
			Chemical Total	---	1.3E-06	---	1.3E-06		---	---	---	---
		Exposure Point Total					1.3E-06					---
	Surface Soil Total						2.2E-04					---
Soil Total							2.2E-04					---

Total Risk Across All Media: 2.2E-04

Total Hazard Across All Media: ---

TABLE A-10.1e3-5 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	PAHs									
			Benzo(a)pyrene	3.2E-06	---	2.8E-06	6.0E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	5.9E-07	---	5.1E-07	1.1E-06	---	---	---	---	---
			Metals									
			Arsenic	2.1E-06	---	4.1E-07	2.5E-06	---	---	---	---	---
			Chromium Total	3.2E-06	---	---	3.2E-06	---	---	---	---	---
			Chemical Total	9.1E-06	---	3.7E-06	1.3E-05		---	---	---	---
		Exposure Point Total					1.3E-05					---
		Air at Risk Area E3	PAHs									
			Benzo(a)pyrene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-11	---	1.6E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Chromium Total	---	9.0E-08	---	9.0E-08	---	---	---	---	---
			Chemical Total	---	9.1E-08	---	9.1E-08		---	---	---	---
		Exposure Point Total					9.1E-08					---
	Surface Soil Total						1.3E-05					---
Soil Total							1.3E-05					---

Total Risk Across All Media: 1.3E-05

Total Hazard Across All Media: ---

TABLE A-10.2e3-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	PAHs									
			Benzo(a)anthracene	6.9E-06	---	2.6E-06	9.5E-06	---	---	---	---	---
			Benzo(a)pyrene	5.3E-05	---	2.0E-05	7.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	6.3E-06	---	2.4E-06	8.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	9.7E-06	---	3.7E-06	1.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.6E-06	---	1.4E-06	5.0E-06	---	---	---	---	---
			Metals									
			Arsenic	1.2E-05	---	1.1E-06	1.3E-05	---	---	---	---	---
			Chromium Total	1.7E-04	---	---	1.7E-04	---	---	---	---	---
			Chemical Total	2.6E-04	---	3.2E-05	2.9E-04		---	---	---	---
		Exposure Point Total					2.9E-04					---
		Air at Risk Area E3	PAHs									
			Benzo(a)anthracene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Benzo(a)pyrene	---	8.9E-10	---	8.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.0E-11	---	6.0E-11	---	---	---	---	---
			Metals									
			Arsenic	---	6.4E-09	---	6.4E-09	---	---	---	---	---
			Chromium Total	---	3.1E-06	---	3.1E-06	---	---	---	---	---
			Chemical Total	---	3.1E-06	---	3.1E-06		---	---	---	---
		Exposure Point Total					3.1E-06					---
	Aggregate Soil Total						2.9E-04					---
Soil Total							2.9E-04					---

Total Risk Across All Media: 2.9E-04

Total Hazard Across All Media: ---

TABLE A-10.2e3-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	Metals									
			Chromium Total	5.9E-07	---	---	5.9E-07	---	---	---	---	---
			Chemical Total	5.9E-07	---	---	5.9E-07		---	---	---	---
		Exposure Point Total					5.9E-07					---
		Air at Risk Area E3	Metals									
			Chromium Total	---	5.1E-06	---	5.1E-06	---	---	---	---	---
			Chemical Total	---	5.1E-06	---	5.1E-06		---	---	---	---
		Exposure Point Total					5.1E-06					---
	Aggregate Soil Total						5.7E-06					---
Soil Total							5.7E-06					---

Total Risk Across All Media: 5.7E-06

Total Hazard Across All Media: ---

TABLE A-10.1e3-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area E3	PAHs					---				
			Benzo(a)anthracene	2.7E-06	---	4.0E-07	3.1E-06	---	---	---	---	---
			Benzo(a)pyrene	2.1E-05	---	3.0E-06	2.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.4E-06	---	3.5E-07	2.8E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	3.8E-06	---	5.6E-07	4.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.4E-06	---	2.1E-07	1.6E-06	---	---	---	---	---
			Metals					---				
			Arsenic	1.7E-06	---	5.6E-08	1.7E-06	---	---	---	---	---
			Chromium Total	2.1E-05	---	---	2.1E-05	---	---	---	---	---
			Chemical Total	5.3E-05	---	4.6E-06	5.8E-05		---	---	---	---
		Exposure Point Total					5.8E-05					---
		Air at Risk Area E3	PAHs					---				
			Benzo(a)anthracene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	6.2E-10	---	6.2E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	7.2E-11	---	7.2E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.3E-11	---	4.3E-11	---	---	---	---	---
			Metals					---				
			Arsenic	---	1.7E-09	---	1.7E-09	---	---	---	---	---
			Chromium Total	---	6.9E-07	---	6.9E-07	---	---	---	---	---
			Chemical Total	---	6.9E-07	---	6.9E-07		---	---	---	---
		Exposure Point Total					6.9E-07					---
	Surface Soil Total						5.9E-05					---
Soil Total							5.9E-05					---

Total Risk Across All Media: 5.9E-05

Total Hazard Across All Media: ---

TABLE A-10.2e3-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA E3
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area E3	PAHs									
			Benzo(a)anthracene	2.1E-06	---	3.0E-07	2.4E-06	---	---	---	---	---
			Benzo(a)pyrene	1.6E-05	---	2.3E-06	1.8E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.9E-06	---	2.8E-07	2.2E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-06	---	4.3E-07	3.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.6E-07	1.3E-06	---	---	---	---	---
			Metals									
			Arsenic	1.9E-06	---	6.4E-08	2.0E-06	---	---	---	---	---
			Chromium Total	5.0E-05	---	---	5.0E-05	---	---	---	---	---
			Chemical Total	7.6E-05	---	3.6E-06	8.0E-05		---	---	---	---
		Exposure Point Total					8.0E-05					---
		Air at Risk Area E3	PAHs									
			Benzo(a)anthracene	---	6.2E-11	---	6.2E-11	---	---	---	---	---
			Benzo(a)pyrene	---	4.8E-10	---	4.8E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	5.7E-11	---	5.7E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	9.5E-11	---	9.5E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.3E-11	---	3.3E-11	---	---	---	---	---
			Metals	---		---						
			Arsenic	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Chromium Total	---	1.7E-06	---	1.7E-06	---	---	---	---	---
			Chemical Total	---	1.7E-06	---	1.7E-06		---	---	---	---
		Exposure Point Total					1.7E-06					---
	Aggregate Soil Total						8.1E-05					---
Soil Total							8.1E-05					---

Total Risk Across All Media: 8.1E-05

Total Hazard Across All Media: ---

TABLE A-10.1F-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	PAHs									
			Benzo(a)anthracene	9.1E-06	---	3.5E-06	1.3E-05	---	---	---	---	---
			Benzo(a)pyrene	5.1E-05	---	2.0E-05	7.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.0E-05	---	4.0E-06	1.4E-05	---	---	---	---	---
			Benzo(k)fluoranthene	1.0E-06	---	3.8E-07	1.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.7E-05	---	6.6E-06	2.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.8E-06	---	1.5E-06	5.2E-06	---	---	---	---	---
			Metals									
			Arsenic	1.8E-05	---	1.7E-06	2.0E-05	---	---	---	---	---
			Chromium Total	6.2E-05	---	---	6.2E-05	---	---	---	---	---
			Chemical Total	1.7E-04	---	3.7E-05	2.1E-04		---	---	---	---
		Exposure Point Total					2.1E-04					---
		Air at Risk Area F	PAHs									
			Benzo(a)anthracene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(a)pyrene	---	8.6E-10	---	8.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.1E-10	---	3.1E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	6.3E-11	---	6.3E-11	---	---	---	---	---
			Metals									
			Arsenic	---	9.7E-09	---	9.7E-09	---	---	---	---	---
			Chromium Total	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	1.2E-06	---	1.2E-06		---	---	---	---
		Exposure Point Total					1.2E-06					---
	Surface Soil Total						2.1E-04					---
Soil Total							2.1E-04					---

Total Risk Across All Media: 2.1E-04

Total Hazard Across All Media: ---

TABLE A-10.2F-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	PAHs									
			Benzo(a)anthracene	7.9E-06	---	3.0E-06	1.1E-05	---	---	---	---	---
			Benzo(a)pyrene	6.6E-05	---	2.5E-05	9.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.9E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Benzo(k)fluoranthene	8.6E-07	---	3.3E-07	1.2E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.6E-05	---	6.1E-06	2.2E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.5E-06	---	1.3E-06	4.9E-06	---	---	---	---	---
			Metals									
			Arsenic	1.7E-05	---	1.6E-06	1.9E-05	---	---	---	---	---
			Chromium Total	3.6E-04	---	---	3.6E-04	---	---	---	---	---
			Chemical Total	4.8E-04	---	4.1E-05	5.2E-04		---	---	---	---
		Exposure Point Total					5.2E-04					---
		Air at Risk Area F	PAHs									
			Benzo(a)anthracene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Benzo(k)fluoranthene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.9E-10	---	2.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	5.9E-11	---	5.9E-11	---	---	---	---	---
			Metals									
			Arsenic	---	9.3E-09	---	9.3E-09	---	---	---	---	---
			Chromium Total	---	6.6E-06	---	6.6E-06	---	---	---	---	---
			Chemical Total	---	6.7E-06	---	6.7E-06		---	---	---	---
		Exposure Point Total					6.7E-06					---
	Aggregate Soil Total						5.2E-04					---
Soil Total							5.2E-04					---

Total Risk Across All Media: 5.2E-04

Total Hazard Across All Media: ---

TABLE A-10.2F-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Metals									
			Chromium Total	1.3E-06	---	---	1.3E-06	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.3E-06	---	---	1.3E-06		---	---	---	---
		Exposure Point Total					1.3E-06					---
		Air at Risk Area F	Metals									
			Chromium Total	---	1.1E-05	---	1.1E-05	---	---	---	---	---
			Vanadium	---	1.4E-06	---	1.4E-06	---	---	---	---	---
			Chemical Total	---	---	---	1.2E-05		---	---	---	---
		Exposure Point Total					1.2E-05					---
	Aggregate Soil Total						1.4E-05					---
Soil Total							1.4E-05					---

Total Risk Across All Media: 1.4E-05

Total Hazard Across All Media: ---

TABLE A-10.1F-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area F	PAHs									
			Benzo(a)anthracene	2.8E-06	---	4.0E-07	3.2E-06	---	---	---	---	---
			Benzo(a)pyrene	1.6E-05	---	2.3E-06	1.8E-05	---	---	---	---	---
			Benzo(b)fluoranthene	3.1E-06	---	4.6E-07	3.6E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	5.2E-06	---	7.6E-07	6.0E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.7E-07	1.3E-06	---	---	---	---	---
			Metals									
			Arsenic	2.9E-06	---	9.7E-08	3.0E-06	---	---	---	---	---
			Chromium Total	1.9E-05	---	---	1.9E-05	---	---	---	---	---
			Chemical Total	4.9E-05	---	4.2E-06	5.3E-05		---	---	---	---
		Exposure Point Total					5.3E-05					---
		Air at Risk Area F	PAHs									
			Benzo(a)anthracene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			Benzo(a)pyrene	---	4.6E-10	---	4.6E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	9.3E-11	---	9.3E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.7E-10	---	1.7E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.4E-11	---	3.4E-11	---	---	---	---	---
			Metals									
			Arsenic	---	2.9E-09	---	2.9E-09	---	---	---	---	---
			Chromium Total	---	6.2E-07	---	6.2E-07	---	---	---	---	---
			Chemical Total	---	6.2E-07	---	6.2E-07		---	---	---	---
		Exposure Point Total					6.2E-07					---
	Surface Soil Total						5.4E-05					---
Soil Total							5.4E-05					---

Total Risk Across All Media: 5.4E-05

Total Hazard Across All Media: ---

TABLE A-10.2F-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	PAHs									
			Benzo(a)anthracene	2.4E-06	---	3.5E-07	2.7E-06	---	---	---	---	---
			Benzo(a)pyrene	2.0E-05	---	2.9E-06	2.3E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-06	---	3.9E-07	3.1E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	4.8E-06	---	7.0E-07	5.5E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.1E-06	---	1.6E-07	1.2E-06	---	---	---	---	---
			Metals									
			Arsenic	2.8E-06	---	9.3E-08	2.8E-06	---	---	---	---	---
			Chromium Total	1.1E-04	---	---	1.1E-04	---	---	---	---	---
			Chemical Total	1.4E-04	---	4.6E-06	1.5E-04		---	---	---	---
		Exposure Point Total					1.5E-04					---
		Air at Risk Area F	PAHs									
			Benzo(a)anthracene	---	7.1E-11	---	7.1E-11	---	---	---	---	---
			Benzo(a)pyrene	---	5.9E-10	---	5.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.0E-11	---	8.0E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-10	---	1.6E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.2E-11	---	3.2E-11	---	---	---	---	---
			Metals									
			Arsenic	---	2.8E-09	---	2.8E-09	---	---	---	---	---
			Chromium Total	---	3.6E-06	---	3.6E-06	---	---	---	---	---
			Chemical Total	---	3.6E-06	---	3.6E-06		---	---	---	---
		Exposure Point Total					3.6E-06					---
	Aggregate Soil Total						1.5E-04					---
Soil Total							1.5E-04					---

Total Risk Across All Media: 1.5E-04

Total Hazard Across All Media: ---

TABLE A-10.2F-8 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA F
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area F	Metals									
			Chromium Total	7.7E-08	---	---	7.7E-08	---	---	---	---	---
			Chemical Total	7.7E-08	---	---	7.7E-08		---	---	---	---
		Exposure Point Total					7.7E-08					---
		Air at Risk Area F	Metals									
			Chromium Total	---	2.2E-06	---	2.2E-06	---	---	---	---	---
			Chemical Total	---	2.2E-06	---	2.2E-06		---	---	---	---
		Exposure Point Total					2.2E-06					---
	Aggregate Soil Total						2.3E-06					---
Soil Total							2.3E-06					---

Total Risk Across All Media: 2.3E-06

Total Hazard Across All Media: ---

TABLE A-10.1g-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area G	PAHs									
			Benzo(a)pyrene	2.3E-06	---	2.0E-06	4.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	6.4E-07	---	5.5E-07	1.2E-06	---	---	---	---	---
			Metals									
			Arsenic	1.1E-05	---	2.1E-06	1.3E-05	---	---	---	---	---
			Chromium Total	1.2E-05	---	---	1.2E-05	---	---	---	---	---
			Chemical Total	2.5E-05	---	4.7E-06	3.0E-05		---	---	---	---
		Exposure Point Total					3.0E-05					---
		Air at Risk Area G	PAHs									
			Benzo(a)pyrene	---	5.9E-11	---	5.9E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.8E-11	---	1.8E-11	---	---	---	---	---
			Metals									
			Arsenic	---	5.2E-09	---	5.2E-09	---	---	---	---	---
			Chromium Total	---	3.3E-07	---	3.3E-07	---	---	---	---	---
			Chemical Total	---	3.3E-07	---	3.3E-07		---	---	---	---
		Exposure Point Total					3.3E-07					---
	Surface Soil Total						3.0E-05					---
Soil Total							3.0E-05					---

Total Risk Across All Media: 3.0E-05

Total Hazard Across All Media: ---

TABLE A-10.2g-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	PAHs									
			Benzo(a)pyrene	1.8E-06	---	1.5E-06	3.3E-06	---	---	---	---	---
			Metals									
			Arsenic	6.9E-06	---	1.4E-06	8.2E-06	---	---	---	---	---
			Chromium Total	6.9E-06	---	---	6.9E-06	---	---	---	---	---
			Chemical Total	1.6E-05	---	2.9E-06	1.8E-05		---	---	---	---
		Exposure Point Total					1.8E-05					---
		Air at Risk Area G	PAHs									
			Benzo(a)pyrene	---	4.5E-11	---	4.5E-11	---	---	---	---	---
			Metals									
			Arsenic	---	3.3E-09	---	3.3E-09	---	---	---	---	---
			Chromium Total	---	1.9E-07	---	1.9E-07	---	---	---	---	---
			Chemical Total	---	2.0E-07	---	2.0E-07		---	---	---	---
		Exposure Point Total					2.0E-07					---
	Aggregate Soil Total						1.9E-05					---
Soil Total							1.9E-05					---

Total Risk Across All Media: 1.9E-05

Total Hazard Across All Media: ---

TABLE A-10.2g-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Metals									
			Chromium Total	4.7E-07	---	---	4.7E-07	---	---	---	---	---
			Chemical Total	4.7E-07	---	---	4.7E-07		---	---	---	---
		Exposure Point Total					4.7E-07					---
		Air at Risk Area G	Metals									
			Chromium Total	---	4.0E-06	---	4.0E-06	---	---	---	---	---
			Chemical Total	---	4.0E-06	---	4.0E-06		---	---	---	---
		Exposure Point Total					4.0E-06					---
	Aggregate Soil Total						4.5E-06					---
Soil Total							4.5E-06					---

Total Risk Across All Media: 4.5E-06

Total Hazard Across All Media: ---

TABLE A-10.1g-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area G	Metals									
			Arsenic	1.7E-06	---	6.8E-08	1.8E-06	---	---	---	---	---
			Chromium Total	1.8E-06	---	---	1.8E-06	---	---	---	---	---
			Chemical Total	3.5E-06	---	6.8E-08	3.6E-06		---	---	---	---
		Exposure Point Total					3.6E-06					---
		Air at Risk Area G	Metals									
			Arsenic	---	1.6E-09	---	1.6E-09	---	---	---	---	---
			Chromium Total	---	1.0E-07	---	1.0E-07	---	---	---	---	---
			Chemical Total	---	1.0E-07	---	1.0E-07		---	---	---	---
		Exposure Point Total					1.0E-07					---
	Surface Soil Total						3.7E-06					---
Soil Total							3.7E-06					---

Total Risk Across All Media: 3.7E-06

Total Hazard Across All Media: ---

TABLE A-10.2g-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA G
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area G	Metals									
			Arsenic	1.1E-06	---	4.3E-08	1.1E-06	---	---	---	---	---
			Chromium Total	1.1E-06	---	---	1.1E-06	---	---	---	---	---
			Chemical Total	2.2E-06	---	4.3E-08	2.2E-06		---	---	---	---
		Exposure Point Total					2.2E-06					---
		Air at Risk Area G	Metals									
			Arsenic	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Chromium Total	---	6.1E-08	---	6.1E-08	---	---	---	---	---
			Chemical Total	---	6.2E-08	---	6.2E-08		---	---	---	---
		Exposure Point Total					6.2E-08					---
	Aggregate Soil Total						2.3E-06					---
Soil Total							2.3E-06					---

Total Risk Across All Media: 2.3E-06

Total Hazard Across All Media: ---

TABLE A-10.1h-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area H	PAHs									
			Benzo(a)anthracene	7.2E-07	---	6.1E-07	1.3E-06	---	---	---	---	---
			Benzo(a)pyrene	7.7E-06	---	6.6E-06	1.4E-05	---	---	---	---	---
			Benzo(b)fluoranthene	8.5E-07	---	7.3E-07	1.6E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.5E-06	---	2.1E-06	4.6E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.0E-07	---	5.2E-07	1.1E-06	---	---	---	---	---
			Metals									
			Arsenic	2.0E-06	---	3.9E-07	2.4E-06	---	---	---	---	---
			Chromium Total	2.7E-06	---	---	2.7E-06	---	---	---	---	---
			Chemical Total	1.7E-05	---	1.1E-05	2.8E-05		---	---	---	---
		Exposure Point Total					2.8E-05					---
		Air at Risk Area H	PAHs									
			Benzo(a)anthracene	---	1.8E-11	---	1.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.9E-10	---	1.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	2.2E-11	---	2.2E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.9E-11	---	6.9E-11	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.5E-11	---	1.5E-11	---	---	---	---	---
			Metals									
			Arsenic	---	9.6E-10	---	9.6E-10	---	---	---	---	---
			Chromium Total	---	7.8E-08	---	7.8E-08	---	---	---	---	---
			Chemical Total	---	7.9E-08	---	7.9E-08		---	---	---	---
		Exposure Point Total					7.9E-08					---
	Surface Soil Total						2.8E-05					---
Soil Total							2.8E-05					---

Total Risk Across All Media: 2.8E-05

Total Hazard Across All Media: ---

TABLE A-10.2h-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	PAHs									
			Benzo(a)anthracene	1.3E-06	---	1.1E-06	2.5E-06	---	---	---	---	---
			Benzo(a)pyrene	1.4E-05	---	1.2E-05	2.6E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.6E-06	---	1.3E-06	2.9E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	3.7E-06	---	3.2E-06	6.9E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	6.8E-07	---	5.9E-07	1.3E-06	---	---	---	---	---
			Metals									
			Arsenic	7.3E-06	---	1.4E-06	8.8E-06	---	---	---	---	---
			Chromium Total	3.0E-06	---	---	3.0E-06	---	---	---	---	---
			Chemical Total	3.1E-05	---	2.0E-05	5.1E-05		---	---	---	---
		Exposure Point Total					5.1E-05					---
		Air at Risk Area H	PAHs									
			Benzo(a)anthracene	---	3.4E-11	---	3.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	3.5E-10	---	3.5E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.0E-11	---	4.0E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.7E-11	---	1.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	3.5E-09	---	3.5E-09	---	---	---	---	---
			Chromium Total	---	8.5E-08	---	8.5E-08	---	---	---	---	---
			Chemical Total	---	8.9E-08	---	8.9E-08		---	---	---	---
		Exposure Point Total					8.9E-08					---
	Aggregate Soil Total						5.1E-05					---
Soil Total							5.1E-05					---

Total Risk Across All Media: 5.1E-05

Total Hazard Across All Media: ---

TABLE A-10.2h-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	PAHs									
			Benzo(a)pyrene	9.5E-07	---	3.7E-07	1.3E-06	---	---	---	---	---
			Metals									
			Chromium Total	2.1E-07	---	---	2.1E-07	---	---	---	---	---
			Chemical Total	1.2E-06	---	3.7E-07	1.5E-06		---	---	---	---
		Exposure Point Total					1.5E-06					---
		Air at Risk Area H	PAHs									
			Benzo(a)pyrene	---	7.2E-09	---	7.2E-09	---	---	---	---	---
			Metals									
			Chromium Total	---	1.8E-06	---	1.8E-06	---	---	---	---	---
			Chemical Total	---	1.8E-06	---	1.8E-06		---	---	---	---
		Exposure Point Total					1.8E-06					---
	Aggregate Soil Total						3.3E-06					---
Soil Total							3.3E-06					---

Total Risk Across All Media: 3.3E-06

Total Hazard Across All Media: ---

TABLE A-10.1h-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area H	PAHs									
			Benzo(a)pyrene	1.2E-06	---	2.1E-07	1.4E-06	---	---	---	---	---
			Chemical Total	1.2E-06	---	2.1E-07	1.4E-06		---	---	---	---
		Exposure Point Total					1.4E-06					---
		Air at Risk Area H	PAHs									
			Benzo(a)pyrene	---	6.1E-11	---	6.1E-11	---	---	---	---	---
			Chemical Total	---	6.1E-11	---	6.1E-11		---	---	---	---
		Exposure Point Total					6.1E-11					---
	Surface Soil Total						1.4E-06					---
Soil Total							1.4E-06					---

Total Risk Across All Media: 1.4E-06

Total Hazard Across All Media: ---

TABLE A-10.2h-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA H
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area H	PAHs									
			Benzo(a)pyrene	2.2E-06	---	3.7E-07	2.5E-06	---	---	---	---	---
			Metals									
			Arsenic	1.2E-06	---	4.6E-08	1.2E-06	---	---	---	---	---
			Chemical Total	3.3E-06	---	4.2E-07	3.7E-06		---		---	---
		Exposure Point Total					3.7E-06					---
		Air at Risk Area H	PAHs									
			Benzo(a)pyrene	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			Metals									
			Arsenic	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Chemical Total	---	1.2E-09	---	1.2E-09		---		---	---
		Exposure Point Total					1.2E-09					---
	Aggregate Soil Total						3.7E-06					---
Soil Total							3.7E-06					---

Total Risk Across All Media: 3.7E-06

Total Hazard Across All Media: ---

TABLE A-10.1i-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	1.1E-06	---	9.6E-07	2.1E-06	---	---	---	---	---
			Benzo(a)pyrene	1.1E-05	---	9.4E-06	2.0E-05	---	---	---	---	---
			Benzo(b)fluoranthene	1.9E-06	---	1.6E-06	3.5E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.4E-06	---	1.2E-06	2.7E-06	---	---	---	---	---
			Metals									
			Arsenic	2.8E-06	---	5.6E-07	3.4E-06	---	---	---	---	---
			Chromium Total	2.9E-06	---	---	2.9E-06	---	---	---	---	---
			Chemical Total	2.1E-05	---	1.4E-05	3.5E-05		---	---	---	---
		Exposure Point Total					3.5E-05					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	2.8E-11	---	2.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	2.8E-10	---	2.8E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	4.7E-11	---	4.7E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.9E-11	---	3.9E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.4E-09	---	1.4E-09	---	---	---	---	---
			Chromium Total	---	8.1E-08	---	8.1E-08	---	---	---	---	---
			Chemical Total	---	8.3E-08	---	8.3E-08		---	---	---	---
		Exposure Point Total					8.3E-08					---
	Surface Soil Total						3.5E-05					---
Soil Total							3.5E-05					---

Total Risk Across All Media: 3.5E-05

Total Hazard Across All Media: ---

TABLE A-10.2i-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	1.4E-05	---	1.2E-05	2.5E-05	---	---	---	---	---
			Benzo(a)pyrene	1.2E-04	---	9.9E-05	2.1E-04	---	---	---	---	---
			Benzo(b)fluoranthene	4.8E-06	---	4.1E-06	8.8E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	2.9E-05	---	2.5E-05	5.3E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	9.7E-06	---	8.3E-06	1.8E-05	---	---	---	---	---
			Metals									
			Arsenic	5.2E-06	---	1.0E-06	6.2E-06	---	---	---	---	---
			Chromium Total	2.1E-06	---	---	2.1E-06	---	---	---	---	---
			Chemical Total	1.8E-04	---	1.5E-04	3.3E-04		---	---	---	---
		Exposure Point Total					3.3E-04					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	3.4E-10	---	3.4E-10	---	---	---	---	---
			Benzo(a)pyrene	---	2.9E-09	---	2.9E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	7.9E-10	---	7.9E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Metals									
			Arsenic	---	2.5E-09	---	2.5E-09	---	---	---	---	---
			Chromium Total	---	5.9E-08	---	5.9E-08	---	---	---	---	---
			Chemical Total	---	6.6E-08	---	6.6E-08		---	---	---	---
		Exposure Point Total					6.6E-08					---
	Aggregate Soil Total						3.3E-04					---
Soil Total							3.3E-04					---

Total Risk Across All Media: 3.3E-04

Total Hazard Across All Media: ---

TABLE A-10.2i-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	9.3E-07	---	3.6E-07	1.3E-06	---	---	---	---	---
			Benzo(a)pyrene	7.9E-06	---	3.1E-06	1.1E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	2.0E-06	---	7.7E-07	2.7E-06	---	---	---	---	---
			Metals	---								
			Chromium Total	1.4E-07	---	---	1.4E-07	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	1.1E-05	---	4.2E-06	1.5E-05		---	---	---	---
		Exposure Point Total					1.5E-05					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	7.1E-09	---	7.1E-09	---	---	---	---	---
			Benzo(a)pyrene	---	6.1E-08	---	6.1E-08	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.6E-08	---	1.6E-08	---	---	---	---	---
			Metals									
			Chromium Total	---	1.2E-06	---	1.2E-06	---	---	---	---	---
			Vanadium	---	1.5E-06	---	1.5E-06	---	---	---	---	---
			Chemical Total	---	2.8E-06	---	2.8E-06		---	---	---	---
		Exposure Point Total					2.8E-06					
	Aggregate Soil Total						1.8E-05					---
Soil Total							1.8E-05					---

Total Risk Across All Media: 1.8E-05

Total Hazard Across All Media: ---

TABLE A-10.1i-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area I	PAHs									
			Benzo(a)pyrene	1.7E-06	---	3.0E-07	2.0E-06	---	---	---	---	---
			Chemical Total	1.7E-06	---	3.0E-07	2.0E-06		---	---	---	---
		Exposure Point Total					2.0E-06					---
		Air at Risk Area I	PAHs									
			Benzo(a)pyrene	---	8.8E-11	---	8.8E-11	---	---	---	---	---
			Chemical Total	---	8.8E-11	---	8.8E-11		---	---	---	---
		Exposure Point Total					8.8E-11					---
	Surface Soil Total						2.0E-06					---
Soil Total							2.0E-06					---

Total Risk Across All Media: 2.0E-06

Total Hazard Across All Media: ---

TABLE A-10.2i-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA I
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area I	PAHs									
			Benzo(a)anthracene	2.1E-06	---	3.7E-07	2.5E-06	---	---	---	---	---
			Benzo(a)pyrene	1.8E-05	---	3.1E-06	2.1E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	4.5E-06	---	7.8E-07	5.3E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.5E-06	---	2.6E-07	1.8E-06	---	---	---	---	---
			Chemical Total	2.6E-05	---	4.5E-06	3.1E-05		---	---	---	---
		Exposure Point Total					3.1E-05					---
		Air at Risk Area I	PAHs									
			Benzo(a)anthracene	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			Benzo(a)pyrene	---	9.2E-10	---	9.2E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Chemical Total	---	1.4E-09	---	1.4E-09		---	---	---	---
		Exposure Point Total					1.4E-09					---
	Aggregate Soil Total						3.1E-05					---
Soil Total							3.1E-05					---

Total Risk Across All Media: 3.1E-05

Total Hazard Across All Media: ---

TABLE A-10.1j-1 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Metals									
			Chromium Total	---	---	---	---	None observed	6.4	---	---	6.4
			Chemical Total	---	---	---	---		6.4	---	---	6.4
		Exposure Point Total					---					6.4
		Air at Risk Area J	Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Chemical Total	---	---	---	---		---	0.096	---	0.096
		Exposure Point Total					---					0.096
	Surface Soil Total						---					6.5
Soil Total							---					6.5

Total Risk Across All Media: ---

Total Hazard Across All Media: 6.5

Total Lung/Respiratory Tract HI Across All Media: 0.096

TABLE A-10.1j-2 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	7.4	---	2.9	10
			Metals									
			Chromium Total	---	---	---	---	None observed	59	---	---	59
			Nickel	---	---	---	---	Body weight	1.2	---	---	1.2
			Chemical Total	---	---	---	---		68	---	2.9	71
		Exposure Point Total					---					71
		Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Nickel	---	---	---	---	Respiratory tract	---	0.015	---	0.015
			Chemical Total	---	---	---	---		---	0.11	---	0.11
		Exposure Point Total					---					0.11
	Surface Soil Total						---					71
Soil Total							---					71

Total Risk Across All Media	---
Total Hazard Across All Media	71
Total Eye HI Across All Media	10
Total Immune System HI Across All Media	10
Total Body Weight HI Across All Media	1.2
Total Lung/Respiratory Tract HI Across All Media	0.11

TABLE A-10.1j-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PAHs									
			Benzo(a)anthracene	1.1E-05	---	4.2E-06	1.5E-05	---	---	---	---	---
			Benzo(a)pyrene	7.7E-05	---	2.9E-05	1.1E-04	---	---	---	---	---
			Benzo(b)fluoranthene	9.0E-06	---	3.4E-06	1.2E-05	---	---	---	---	---
			Dibenz(a,h)anthracene	2.4E-05	---	9.3E-06	3.4E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	5.4E-06	---	2.1E-06	7.5E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	3.6E-05	---	1.6E-05	5.2E-05	---	---	---	---	---
			Aroclor-1260	1.9E-06	---	8.4E-07	2.7E-06	---	---	---	---	---
			Metals									
			Arsenic	1.1E-05	---	1.1E-06	1.2E-05	---	---	---	---	---
			Chromium Total	4.7E-02	---	---	4.7E-02	---	---	---	---	---
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	4.7E-02	---	6.6E-05	4.7E-02		---	---	---	---
		Exposure Point Total					4.7E-02					---
		Air at Risk Area J	PAHs									
			Benzo(a)anthracene	---	1.8E-10	---	1.8E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.3E-09	---	1.3E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.5E-10	---	1.5E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	4.4E-10	---	4.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	9.0E-11	---	9.0E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.9E-09	---	1.9E-09	---	---	---	---	---
			Aroclor-1260	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Metals									
			Arsenic	---	6.1E-09	---	6.1E-09	---	---	---	---	---
			Chromium Total	---	8.7E-04	---	8.7E-04	---	---	---	---	---
			Vanadium	---	1.1E-06	---	1.1E-06	---	---	---	---	---
			Chemical Total	---	8.7E-04	---	8.7E-04		---	---	---	---
		Exposure Point Total					8.7E-04					---
	Surface Soil Total						4.8E-02					---
Soil Total							4.8E-02					---

Total Risk Across All Media: 4.8E-02

Total Hazard Across All Media: ---

TABLE A-10.1j-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PAHs									
			Benzo(a)anthracene	5.7E-07	---	4.9E-07	1.1E-06	---	---	---	---	---
			Benzo(a)pyrene	4.0E-06	---	3.4E-06	7.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.3E-06	---	1.1E-06	2.4E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	8.0E-06	---	7.4E-06	1.5E-05	---	---	---	---	---
			Metals									
			Arsenic	2.5E-06	---	5.0E-07	3.0E-06	---	---	---	---	---
			Chromium Total	2.4E-03	---	---	2.4E-03	None observed	4.5	---	---	4.5
			Chemical Total	2.5E-03	---	1.3E-05	2.5E-03		4.5	---	---	4.5
		Exposure Point Total					2.5E-03					4.5
		Air at Risk Area J	PAHs									
			Benzo(a)anthracene	---	1.4E-11	---	1.4E-11	---	---	---	---	---
			Benzo(a)pyrene	---	1.0E-10	---	1.0E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	3.5E-11	---	3.5E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Metals									
			Arsenic	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Chromium Total	---	6.9E-05	---	6.9E-05	Respiratory tract	---	0.023	---	0.023
			Chemical Total	---	6.9E-05	---	6.9E-05		---	0.023	---	0.023
		Exposure Point Total					6.9E-05					0.023
	Surface Soil Total						2.5E-03					4.6
Soil Total							2.5E-03					4.6

Total Risk Across All Media: 2.5E-03

Total Hazard Across All Media: 4.6

TABLE A-10.1j-9 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PAHs									
			Benzo(a)pyrene	2.7E-06	---	2.9E-06	5.6E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	8.5E-07	---	9.2E-07	1.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.8E-06	---	2.1E-06	3.9E-06	---	---	---	---	---
			Metals									
			Chromium Total	1.6E-03	---	---	1.6E-03	None observed	2.5	---	---	2.5
			Chemical Total	1.6E-03	---	6.0E-06	1.6E-03		2.5	---	---	2.5
		Exposure Point Total					1.6E-03					2.5
		Air at Risk Area J	PAHs									
			Benzo(a)pyrene	---	1.9E-11	---	1.9E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	6.5E-12	---	6.5E-12	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	2.4E-11	---	2.4E-11	---	---	---	---	---
			Metals									
			Chromium Total	---	1.3E-05	---	1.3E-05	Respiratory tract	---	0.0036	---	0.0036
			Chemical Total	---	1.3E-05	---	1.3E-05		---	0.0036	---	0.0036
		Exposure Point Total					1.3E-05					0.0036
	Surface Soil Total						1.7E-03					2.5
Soil Total							1.7E-03					2.5
Sediment	Sediment	Sediment at Risk Area J	PAHs									
			Benzo(a)pyrene	2.8E-06	---	3.1E-06	5.9E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	5.1E-07	---	5.6E-07	1.1E-06	---	---	---	---	---
			Metals									
			Chromium Total	7.9E-06	---	---	7.9E-06	---	---	---	---	---
			Chemical Total	1.1E-05	---	3.7E-06	1.5E-05		---	---	---	---
		Exposure Point Total					1.5E-05					---
Sediment Total							1.5E-05					---
Surface Water	Surface Water	Surface Water at Risk Area J	PAHs									
			Benzo(a)pyrene	---	---	5.2E-06	5.2E-06	---	---	---	---	---
			Chemical Total	---	---	5.2E-06	5.2E-06		---	---	---	---
		Exposure Point Total					5.2E-06					---
Surface Water Total							5.2E-06					---

Total Risk Across All Media: 1.7E-03

Total Hazard Across All Media: 2.5

TABLE A-10.2j-1 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	---	---	---	---	None observed	1.7	---	---	1.7
			Chemical Total	---	---	---	---		1.7	---	---	1.7
		Exposure Point Total					---					1.7
		Air at Risk Area J	Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Chemical Total	---	---	---	---		---	0.026	---	0.026
		Exposure Point Total					---					0.026
	Aggregate Soil Total						---					1.8
Soil Total							---					1.8

Total Risk Across All Media: ---

Total Hazard Across All Media: 1.8

Total Lung/Respiratory Tract HI Across All Media: 0.026

TABLE A-10.2j-2 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	1.5	---	0.58	2.0
			Metals									
			Chromium Total	---	---	---	---	None observed	16	---	---	16
			Chemical Total	---	---	---	---		18	---	0.58	18
		Exposure Point Total					---					18
		Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Chemical Total	---	---	---	---		---	0.026	---	0.026
		Exposure Point Total					---					0.026
	Aggregate Soil Total						---					18
Soil Total							---					18

Total Risk Across All Media	---
Total Hazard Across All Media	18
Total Eye HI Across All Media	2.0
Total Immune System HI Across All Media	2.0
Total Lung/Respiratory Tract HI Across All Media	0.026

TABLE A-10.2j-3 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	6.6E-06	---	6.3E-07	7.2E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	7.6E-06	---	2.9E-06	1.0E-05	---	---	---	---	---
			Benzo(a)pyrene	6.0E-05	---	2.3E-05	8.3E-05	---	---	---	---	---
			Benzo(b)fluoranthene	7.0E-06	---	2.7E-06	9.7E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	1.4E-05	---	5.3E-06	1.9E-05	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.9E-06	---	1.9E-06	6.8E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	7.2E-06	---	3.2E-06	1.0E-05	---	---	---	---	---
			Aroclor-1260	8.4E-07	---	3.7E-07	1.2E-06	---	---	---	---	---
			Metals									
			Arsenic	1.1E-05	---	1.0E-06	1.2E-05	---	---	---	---	---
			Chromium Total	1.3E-02	---	---	1.3E-02	---	---	---	---	---
			Chemical Total	1.3E-02	---	4.1E-05	1.3E-02		---	---	---	---
		Exposure Point Total					1.3E-02					---
		Air at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	3.7E-07	---	3.7E-07	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	1.3E-10	---	1.3E-10	---	---	---	---	---
			Benzo(a)pyrene	---	1.0E-09	---	1.0E-09	---	---	---	---	---
			Benzo(b)fluoranthene	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.5E-10	---	2.5E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	8.2E-11	---	8.2E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	3.9E-10	---	3.9E-10	---	---	---	---	---
			Aroclor-1260	---	4.5E-11	---	4.5E-11	---	---	---	---	---
			Metals									
			Arsenic	---	6.0E-09	---	6.0E-09	---	---	---	---	---
			Chromium Total	---	2.4E-04	---	2.4E-04	---	---	---	---	---
			Chemical Total	---	2.4E-04	---	2.4E-04		---	---	---	---
		Exposure Point Total					2.4E-04					---
	Aggregate Soil Total						1.3E-02					---
Soil Total							1.3E-02					---

Total Risk Across All Media: 1.3E-02

Total Hazard Across All Media: ---

TABLE A-10.2j-5 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.3E-06	---	2.6E-07	1.6E-06	---	---	---	---	---
			PAHs									
			Benzo(a)pyrene	2.8E-06	---	2.4E-06	5.2E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.4E-06	---	1.3E-06	2.8E-06	---	---	---	---	---
			Metals									
			Arsenic	2.2E-06	---	4.4E-07	2.7E-06	---	---	---	---	---
			Chromium Total	6.0E-04	---	---	6.0E-04	None observed	1.1	---	---	1.1
			Chemical Total	6.1E-04	---	4.5E-06	6.1E-04		1.1	---	---	1.1
		Exposure Point Total					6.1E-04					1.1
		Air at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	6.5E-11	---	6.5E-11	---	---	---	---	---
			PAHs									
			Benzo(a)pyrene	---	7.1E-11	---	7.1E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	6.9E-11	---	6.9E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.1E-09	---	1.1E-09	---	---	---	---	---
			Chromium Total	---	1.7E-05	---	1.7E-05	Respiratory tract	---	0.0057	---	0.0057
			Chemical Total	---	1.7E-05	---	1.7E-05		---	0.0057	---	0.0057
		Exposure Point Total					1.7E-05					0.0057
	Aggregate Soil Total						6.3E-04					1.1
Soil Total							6.3E-04					1.1

Total Risk Across All Media: 6.3E-04

Total Hazard Across All Media: 1.1

Total Lung/Respiratory Tract HI Across All Media: 0.0057

TABLE A-10.2j-6 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.5E-06	---	2.9E-07	1.8E-06	---	---	---	---	---
			PAHs									
			Benzo(a)pyrene	3.1E-06	---	2.7E-06	5.8E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	7.2E-07	---	6.2E-07	1.3E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.6E-06	---	1.5E-06	3.1E-06	---	---	---	---	---
			Metals									
			Arsenic	2.5E-06	---	4.9E-07	2.9E-06	---	---	---	---	---
			Chromium Total	6.7E-04	---	---	6.7E-04	None observed	1.2	---	---	1.2
			Chemical Total	6.8E-04	---	5.6E-06	6.8E-04		1.2	---	---	1.2
		Exposure Point Total					6.8E-04					1.2
		Air at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	7.3E-11	---	7.3E-11	---	---	---	---	---
			PAHs									
			Benzo(a)pyrene	---	7.9E-11	---	7.9E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.0E-11	---	2.0E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	7.7E-11	---	7.7E-11	---	---	---	---	---
			Metals									
			Arsenic	---	1.2E-09	---	1.2E-09	---	---	---	---	---
			Chromium Total	---	1.9E-05	---	1.9E-05	Respiratory tract	---	0.0063	---	0.0063
			Chemical Total	---	1.9E-05	---	1.9E-05		---	0.0063	---	0.0063
		Exposure Point Total					1.9E-05					0.0063
	Aggregate Soil Total						7.0E-04					1.3
Soil Total							7.0E-04					1.3

Total Risk Across All Media: 7.0E-04

Total Hazard Across All Media: 1.3

Total Lung/Respiratory Tract HI Across All Media: 0.0063

TABLE A-10.2j-8 RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	4.6E-05	---	---	4.6E-05	None observed	2.1	---	---	2.1
			Vanadium	---	---	---	---	---	---	---	---	---
			Chemical Total	4.6E-05	---	---	4.6E-05		2.1	---	---	2.1
		Exposure Point Total					4.6E-05					2.1
		Air at Risk Area J	Metals									
			Chromium Total	---	3.9E-04	---	3.9E-04	Respiratory tract	---	3.3	---	3.3
			Vanadium	---	2.9E-06	---	2.9E-06	---	---	---	---	---
			Chemical Total	---	4.0E-04	---	4.0E-04		---	3.3	---	3.3
		Exposure Point Total					4.0E-04					3.3
	Aggregate Soil Total						4.4E-04					5.4
Soil Total							4.4E-04					5.4

Total Risk Across All Media: 4.4E-04

Total Hazard Across All Media: 5.4

Total Lung/Respiratory Tract HI Across All Media: 3.3

TABLE A-10.1j-1 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Metals									
			Chromium Total	---	---	---	---	None observed	3.2	---	---	3.2
			Chemical Total	---	---	---	---		3.2	---	---	3.2
		Exposure Point Total					---					3.2
		Air at Risk Area J	Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Chemical Total	---	---	---	---		---	0.096	---	0.096
		Exposure Point Total					---					0.096
	Surface Soil Total						---					3.3
Soil Total							---					3.3

Total Risk Across All Media: ---

Total Hazard Across All Media: 3.3

Total Lung/Respiratory Tract HI Across All Media: 0.096

TABLE A-10.1j-2 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	Eyes, Immune system	3.7	---	0.58	4.3
			Metals									
			Chromium Total	---	---	---	---	None observed	30	---	---	30
			Chemical Total	---	---	---	---		33	---	0.58	34
		Exposure Point Total					---					34
		Air at Risk Area J	PCBs									
			Aroclor-1254	---	---	---	---	---	---	---	---	---
			Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.096	---	0.096
			Chemical Total	---	---	---	---		---	0.096	---	0.096
		Exposure Point Total					---					0.096
	Surface Soil Total						---					34
Soil Total							---					34

Total Risk Across All Media	---
Total Hazard Across All Media	34
Total Eye HI Across All Media	4.3
Total Immune System HI Across All Media	4.3
Total Lung/Respiratory Tract HI Across All Media	0.096

TABLE A-10.1j-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PAHs									
			Benzo(a)anthracene	3.3E-06	---	4.8E-07	3.8E-06	---	---	---	---	---
			Benzo(a)pyrene	2.3E-05	---	3.4E-06	2.7E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.7E-06	---	4.0E-07	3.1E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	7.4E-06	---	1.1E-06	8.4E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.6E-06	---	2.4E-07	1.9E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	5.8E-06	---	9.1E-07	6.7E-06	---	---	---	---	---
			Metals									
			Arsenic	1.8E-06	---	6.1E-08	1.9E-06	---	---	---	---	---
			Chromium Total	1.4E-02	---	---	1.4E-02	---	---	---	---	---
			Chemical Total	1.4E-02	---	6.6E-06	1.4E-02		---	---	---	---
		Exposure Point Total					1.4E-02					---
		Air at Risk Area J	PAHs									
			Benzo(a)anthracene	---	9.8E-11	---	9.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	6.9E-10	---	6.9E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	8.1E-11	---	8.1E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	2.4E-10	---	2.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.9E-11	---	4.9E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	5.8E-10	---	5.8E-10	---	---	---	---	---
			Metals									
			Arsenic	---	1.8E-09	---	1.8E-09	---	---	---	---	---
			Chromium Total	---	4.7E-04	---	4.7E-04	---	---	---	---	---
			Chemical Total	---	4.7E-04	---	4.7E-04		---	---	---	---
		Exposure Point Total					4.7E-04					---
	Surface Soil Total						1.5E-02					---
Soil Total							1.5E-02					---

Total Risk Across All Media: 1.5E-02

Total Hazard Across All Media: ---

TABLE A-10.1j-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	PCBs									
			Aroclor-1254	1.3E-06	---	2.3E-07	1.5E-06	---	---	---	---	---
			Metals									
			Chromium Total	3.8E-04	---	---	3.8E-04	None observed	2.0	---	---	2.0
			Chemical Total	3.9E-04	---	2.3E-07	3.9E-04		2.0	---	---	2.0
		Exposure Point Total					3.9E-04					2.0
		Air at Risk Area J	PCBs									
			Aroclor-1254	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Metals									
			Chromium Total	---	2.2E-05	---	2.2E-05	Respiratory tract	---	0.020	---	0.020
			Chemical Total	---	2.2E-05	---	2.2E-05		---	0.020	---	0.020
		Exposure Point Total					2.2E-05					0.020
	Surface Soil Total						4.1E-04					2.0
Soil Total							4.1E-04					2.0

Total Risk Across All Media: 4.1E-04

Total Hazard Across All Media: 2.0

Total Lung/Respiratory Tract HI Across All Media: 0.020

TABLE A-10.1j-9 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Current/Future
Receptor Population: Trespasser
Receptor Age: Adolescent

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	Surface Soil at Risk Area J	Metals									
			Chromium Total	1.9E-04	---	---	1.9E-04	---	---	---	---	---
			Chemical Total	1.9E-04	---	---	1.9E-04		---	---	---	---
		Exposure Point Total					1.9E-04					---
		Air at Risk Area J	Metals									
			Chromium Total	---	1.5E-06	---	1.5E-06	---	---	---	---	---
			Chemical Total	---	1.5E-06	---	1.5E-06		---	---	---	---
		Exposure Point Total					1.5E-06					---
	Surface Soil Total						1.9E-04					---
Soil Total							1.9E-04					---
Sediment	Sediment	Sediment at Risk Area J	Metals									
			Chromium Total	2.0E-06	---	---	2.0E-06	---	---	---	---	---
			Chemical Total	2.0E-06	---	---	2.0E-06		---	---	---	---
		Exposure Point Total					2.0E-06					---
Sediment Total							2.0E-06					---
Surface Water	Surface Water	Surface Water at Risk Area J	PAHs									
			Benzo(a)pyrene	---	---	1.8E-06	1.8E-06	---	---	---	---	---
			Chemical Total	---	---	1.8E-06	1.8E-06		---	---	---	---
		Exposure Point Total					1.8E-06					---
Surface Water Total							1.8E-06					---

Total Risk Across All Media: 1.9E-04

Total Hazard Across All Media: ---

TABLE A-10.2j-2 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	---	---	---	---	None observed	8.1	---	---	8.1
			Chemical Total	---	---	---	---		8.1	---	---	8.1
		Exposure Point Total					---					8.1
		Air at Risk Area J	Metals									
			Chromium Total	---	---	---	---	Respiratory tract	---	0.026	---	0.026
			Chemical Total	---	---	---	---		---	0.026	---	0.026
		Exposure Point Total					---					0.026
	Aggregate Soil Total						---					8.2
Soil Total							---					8.2

Total Risk Across All Media: ---

Total Hazard Across All Media: 8.2

Total Lung/Respiratory Tract HI Across All Media: 0.026

TABLE A-10.2j-3 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Age-Adjusted

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	1.1E-06	---	3.6E-08	1.1E-06	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	2.3E-06	---	3.3E-07	2.6E-06	---	---	---	---	---
			Benzo(a)pyrene	1.8E-05	---	2.7E-06	2.1E-05	---	---	---	---	---
			Benzo(b)fluoranthene	2.1E-06	---	3.1E-07	2.4E-06	---	---	---	---	---
			Dibenz(a,h)anthracene	4.2E-06	---	6.1E-07	4.8E-06	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.5E-06	---	2.2E-07	1.7E-06	---	---	---	---	---
			PCBs									
			Aroclor-1254	1.2E-06	---	1.8E-07	1.3E-06	---	---	---	---	---
			Metals									
			Arsenic	1.8E-06	---	6.0E-08	1.8E-06	---	---	---	---	---
			Chromium Total	3.9E-03	---	---	3.9E-03	---	---	---	---	---
			Chemical Total	3.9E-03	---	4.4E-06	3.9E-03		---	---	---	---
		Exposure Point Total					3.9E-03					---
		Air at Risk Area J	Dioxins/Furans									
			2,3,7,8-TCDD TEQ	---	1.1E-10	---	1.1E-10	---	---	---	---	---
			PAHs									
			Benzo(a)anthracene	---	6.8E-11	---	6.8E-11	---	---	---	---	---
			Benzo(a)pyrene	---	5.4E-10	---	5.4E-10	---	---	---	---	---
			Benzo(b)fluoranthene	---	6.3E-11	---	6.3E-11	---	---	---	---	---
			Dibenz(a,h)anthracene	---	1.4E-10	---	1.4E-10	---	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	4.4E-11	---	4.4E-11	---	---	---	---	---
			PCBs									
			Aroclor-1254	---	1.2E-10	---	1.2E-10	---	---	---	---	---
			Metals									
			Arsenic	---	1.8E-09	---	1.8E-09	---	---	---	---	---
			Chromium Total	---	1.3E-04	---	1.3E-04	---	---	---	---	---
			Chemical Total	---	1.3E-04	---	1.3E-04		---	---	---	---
		Exposure Point Total					1.3E-04					---
	Aggregate Soil Total						4.0E-03					---
Soil Total							4.0E-03					---

Total Risk Across All Media: 4.0E-03

Total Hazard Across All Media: ---

TABLE A-10.2j-5 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Groundskeeper
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	2.2E-05	---	---	2.2E-05	---	---	---	---	---
			Chemical Total	2.2E-05	---	---	2.2E-05		---	---	---	---
		Exposure Point Total					2.2E-05					---
		Air at Risk Area J	Metals	---								
			Chromium Total	---	1.2E-06	---	1.2E-06	---	---	---	---	---
			Chemical Total	---	1.2E-06	---	1.2E-06		---	---	---	---
		Exposure Point Total					1.2E-06					---
	Aggregate Soil Total						2.3E-05					---
Soil Total							2.3E-05					---

Total Risk Across All Media: 2.3E-05

Total Hazard Across All Media: ---

TABLE A-10.2j-6 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Industrial/Commercial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	1.1E-04	---	---	1.1E-04	---	---	---	---	---
			Chemical Total	1.1E-04	---	---	1.1E-04		---	---	---	---
		Exposure Point Total					1.1E-04					---
		Air at Risk Area J	Metals									
			Chromium Total	---	5.9E-06	---	5.9E-06	---	---	---	---	---
			Chemical Total	---	5.9E-06	---	5.9E-06		---	---	---	---
		Exposure Point Total					5.9E-06					---
	Aggregate Soil Total						1.1E-04					---
Soil Total							1.1E-04					---

Total Risk Across All Media: 1.1E-04

Total Hazard Across All Media: ---

TABLE A-10.2j-8 CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
SCOVILL INDUSTRIAL LANDFILL SITE - RISK AREA J
WATERBURY, CONNECTICUT

Scenario Timeframe: Future
Receptor Population: Construction/Utility Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Aggregate Soil	Aggregate Soil at Risk Area J	Metals									
			Chromium Total	2.8E-06	---	---	2.8E-06	---	---	---	---	---
			Chemical Total	2.8E-06	---	---	2.8E-06		---	---	---	---
		Exposure Point Total					2.8E-06					---
		Air at Risk Area J	Metals	---								
			Chromium Total	---	7.8E-05	---	7.8E-05	---	---	---	---	---
			Chemical Total	---	7.8E-05	---	7.8E-05		---	---	---	---
		Exposure Point Total					7.8E-05					---
	Aggregate Soil Total						8.1E-05					---
Soil Total							8.1E-05					---

Total Risk Across All Media: 8.1E-05

Total Hazard Across All Media: ---

Table A-11
Additional Evaluation for Total PCBs

Surface Soil			Aggregate Soil			Sediment		
Risk Area	**Combined Maximum Individual Aroclor Concentration (mg/Kg)**	**ASL/BSL**	**Risk Area**	**Combined Maximum Individual Aroclor Concentration (mg/Kg)**	**ASL/BSL**	**Risk Area**	**Combined Maximum Individual Aroclor Concentration (mg/Kg)**	**ASL/BSL**
D1	0.021	BSL	D1	0.261	ASL	Wetlands	4.7	ASL
D3	0.095	BSL	D3	0.12	BSL			
E1	0.221	ASL	E1	0.86	ASL			
E2	0.149	BSL	E2	0.149	BSL			
E3	0.044	BSL	E3	0.044	BSL			
F	0	BSL	F	0.0039	BSL			
G	0.0163	BSL	G	0.0163	BSL			
H	0.028	BSL	H	0.0514	BSL			
I	0	BSL	I	0.0167	BSL			
J	20.4	ASL	J	20.8	ASL			

ASL	Above Screening Level of 0.112 mg/Kg

BSL	Below Screening Level of 0.112 mg/Kg

BSL	Nominally Above Screening Level of 0.112 mg/Kg but BSL determination based on HI < 0.2 and EPA professional judgment

mg/Kg = milligram per Kilogram HI = Hazard Index

Polychlorinated Biphenyls (PCB) mixtures in soil and sediment were characterized by their resemblance to commercial Aroclors, and risks were characterized for individual Aroclors. Because EPA is concerned with risks from total PCBs, an additional evaluation was done for total PCB concentrations. In this additional evaluation, the sum of the maximum Aroclor concentrations (total PCBs) was compared to the risk-based screening level for soil. The risk-based screening value is 0.112 mg/Kg based on a Hazard Index = 0.1 for a child resident.

The risk-based screening based on total PCBs did not result in the identification of PCBs as a contaminant of potential concern (COPC) in any additional areas beyond those where at least one individual Aroclor was identified as a COPC in Section 3.2., Identification of COPCs.

APPENDIX B

TABLE B-1
SAMPLE LIST - SURFACE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
D1	SS02	08-Oct-02	0-0.25
D1	SS09	31-Oct-02	0-0.25
D1	SS-10	27-Apr-99	0.5-2
D1	SS-10	27-Apr-99	0-0.5
D1	SS108	16-Oct-08	0-0.5
D1	SS109	16-Oct-08	0-0.5
D1	SS-11	27-Apr-99	0.5-2
D1	SS-11	27-Apr-99	0-0.5
D1	SS-12	27-Apr-99	0.5-2
D1	SS-12	27-Apr-99	0-0.5
D1	SS-13	26-Apr-99	0.5-2
D1	SS-13	26-Apr-99	0-0.5
D3	SS113	22-Oct-08	0-2
D3	SS114	23-Oct-08	0-2
D3	SS118	22-Oct-08	0-2
D3	SS38	20-May-04	0-0.5
E1	SS03	08-Oct-02	0-0.25
E1	SS04	04-Oct-02	0-0.25
E1	SS-17	26-Apr-99	0.5-2
E1	SS-17	26-Apr-99	0-0.5
E1	SS-18	26-Apr-99	0.5-2
E1	SS-18	26-Apr-99	0-0.5
E1	SS-19	26-Apr-99	0.5-2
E1	SS-19	26-Apr-99	0-0.5
E1	SS-20	26-Apr-99	0.5-2
E1	SS-20	26-Apr-99	0-0.5
E1	SS-21	26-Apr-99	0.5-2
E1	SS-21	26-Apr-99	0-0.5
E1	SS-22	26-Apr-99	0.5-2
E1	SS-22	26-Apr-99	0-0.5
E2	SS142	16-Oct-08	0-0.5
E2	SS143	01-Nov-08	0-2
E2	SS144	25-Oct-08	0-2
E2	SS145	01-Nov-08	0-2
E2	SS25	08-Oct-02	0-0.25
E2	SS26	24-Oct-02	0-0.25
E2	SS-39	26-Apr-99	0.5-2
E2	SS-39	26-Apr-99	0-0.5
E2	SS-40	26-Apr-99	0.5-2
E2	SS-40	26-Apr-99	0-0.5

TABLE B-1
SAMPLE LIST - SURFACE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
E3	SS27	24-Oct-02	0-0.25
E3	SS31	01-Nov-02	0-0.25
E3	SS-33	26-Apr-99	0.5-2
E3	SS-33	26-Apr-99	0-0.5
E3	SS-34	26-Apr-99	0.5-2
E3	SS-34	26-Apr-99	0-0.5
E3	SS-35	26-Apr-99	0.5-2
E3	SS-35	26-Apr-99	0-0.5
E3	SS-36	26-Apr-99	0.5-2
E3	SS-36	26-Apr-99	0-0.5
E3	SS-37	26-Apr-99	0.5-2
E3	SS-37	26-Apr-99	0-0.5
F	SS01	08-Oct-02	0-0.25
F	SS-01	27-Apr-99	0.5-2
F	SS-01	27-Apr-99	0-0.5
F	SS-02	27-Apr-99	0.5-2
F	SS-02	27-Apr-99	0-0.5
F	SS-03	27-Apr-99	0.5-2
F	SS-03	27-Apr-99	0-0.5
F	SS-04	27-Apr-99	0.5-2
F	SS-04	27-Apr-99	0-0.5
F	SS-05	27-Apr-99	0.5-2
F	SS-05	27-Apr-99	0-0.5
F	SS-06	27-Apr-99	0.5-2
F	SS-06	27-Apr-99	0-0.5
F	SS-07	27-Apr-99	0.5-2
F	SS-07	27-Apr-99	0-0.5
F	SS08	08-Oct-02	0-0.25
F	SS-08	27-Apr-99	0.5-2
F	SS-08	27-Apr-99	0-0.5
F	SS-09	27-Apr-99	0.5-2
F	SS-09	27-Apr-99	0-0.5
F	SS14	08-Oct-02	0-0.25
F	SS14	09-Oct-02	0-0.25
F	SS17	31-Oct-02	0-0.25

TABLE B-1
SAMPLE LIST - SURFACE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
G	MW5	24-May-04	0.5-1.5
G	MW5	24-May-04	1.167-1.167
G	SB39	15-Jul-04	0-2
G	SB39	15-Jul-04	1-1
G	SB40	13-May-04	0-2
G	SB40	13-May-04	1.5-1.5
G	SS23	31-Oct-02	0-0.25
H	SB46	21-May-04	0-2
H	SB46	21-May-04	1.5-1.5
H	SB47	19-May-04	0-1.6
H	SB47	19-May-04	1-1
H	SS10	31-Oct-02	0-0.25
H	SS-14	27-Apr-99	0.5-2
H	SS-14	27-Apr-99	0-0.5
H	SS15	31-Oct-02	0-0.25
H	SS16	01-Nov-02	0-0.25
H	SS18	31-Oct-02	0-0.25
H	SS19	31-Oct-02	0-0.25
I	MW4D	20-May-04	0-2
I	SB44/MW4D	20-May-04	1.5-1.5
I	SS24	31-Oct-02	0-0.25
I	SS29	01-Nov-02	0-0.25
J	MW3D	27-May-04	0-2
J	SB16	18-Oct-02	0-1
J	SB16	23-Oct-02	0-1
J	SB48	18-May-04	0-2
J	SB48	18-May-04	1.5-1.5
J	SS05	08-Oct-02	0-0.25
J	SS11	24-Oct-02	0-0.25
J	SS12	31-Oct-02	0-0.25
J	SS150	05-Oct-10	0.5-1
J	SS20	24-Oct-02	0-0.25
J	SS21	31-Oct-02	0-0.25
J	SS-23	26-Apr-99	0.5-2
J	SS-23	26-Apr-99	0-0.5
J	SS-24	26-Apr-99	0.5-2
J	SS-24	26-Apr-99	0-0.5
J	SS-25	26-Apr-99	0.5-2
J	SS-25	26-Apr-99	0.5-2
J	SS-26	26-Apr-99	0-0.5
J	SS-26	26-Apr-99	0.5-2
J	SS-27	26-Apr-99	0-0.5
J	SS-27	26-Apr-99	0.5-2
J	SS28	01-Nov-02	0-0.25

TABLE B-2
SAMPLE LIST - AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
D1	MW9D	13-Nov-08	5-7
D1	SB03	16-Oct-02	0-5
D1	SB03	23-Oct-02	6-7
D1	SB04	16-Oct-02	0-5
D1	SB04	16-Oct-02	5-10
D1	SB04	31-Oct-02	6-7
D1	SB107	30-Oct-08	5-7
D1	SB108	24-Oct-08	5-7
D1	SB109	27-Oct-08	7-9
D1	SB110	27-Oct-08	5-7
D1	SS02	08-Oct-02	0-0.25
D1	SS09	31-Oct-02	0-0.25
D1	SS-10	27-Apr-99	0-0.5
D1	SS-10	27-Apr-99	0.5-2
D1	SS108	16-Oct-08	0-0.5
D1	SS109	16-Oct-08	0-0.5
D1	SS-11	27-Apr-99	0-0.5
D1	SS-11	27-Apr-99	0.5-2
D1	SS-12	27-Apr-99	0-0.5
D1	SS-12	27-Apr-99	0.5-2
D1	SS-13	26-Apr-99	0-0.5
D1	SS-13	26-Apr-99	0.5-2
D3	SB122	22-Oct-08	5-7
D3	SB128	22-Oct-08	5-7
D3	SB38	12-May-04	0.5-4
D3	SB38	12-May-04	3-3
D3	SB38	12-May-04	6-10
D3	SB38	12-May-04	8-8
D3	SS113	22-Oct-08	0-2
D3	SS114	23-Oct-08	0-2
D3	SS118	22-Oct-08	0-2
D3	SS38	20-May-04	0-0.5
E1	MW11D	04-Nov-08	5-7
E1	SB05	11-Oct-02	9-10
E1	SB05	18-Oct-02	0-5
E1	SB05	18-Oct-02	5-10
E1	SB06	18-Oct-02	5-10
E1	SB06	21-Oct-02	7-8
E1	SB13	03-Oct-02	4-6
E1	SB150	23-Oct-08	5-7
E1	SB152	24-Oct-08	5-7
E1	SB153	24-Oct-08	5-7
E1	SB153	04-Nov-08	5-7

TABLE B-2
SAMPLE LIST - AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
E1	SB154	23-Oct-08	5-7
E1	SS03	08-Oct-02	0-0.25
E1	SS04	04-Oct-02	0-0.25
E1	SS-17	26-Apr-99	0-0.5
E1	SS-17	26-Apr-99	0.5-2
E1	SS-18	26-Apr-99	0-0.5
E1	SS-18	26-Apr-99	0.5-2
E1	SS-19	26-Apr-99	0-0.5
E1	SS-19	26-Apr-99	0.5-2
E1	SS-20	26-Apr-99	0-0.5
E1	SS-20	26-Apr-99	0.5-2
E1	SS-21	26-Apr-99	0-0.5
E1	SS-21	26-Apr-99	0.5-2
E1	SS-22	26-Apr-99	0-0.5
E1	SS-22	26-Apr-99	0.5-2
E2	SB155	25-Oct-08	5-7
E2	SB155	11-Nov-08	5-7
E2	SB157	25-Oct-08	5-7
E2	SB162	25-Oct-08	5-7
E2	SS142	16-Oct-08	0-0.5
E2	SS143	01-Nov-08	0-2
E2	SS144	25-Oct-08	0-2
E2	SS145	01-Nov-08	0-2
E2	SS25	08-Oct-02	0-0.25
E2	SS26	24-Oct-02	0-0.25
E2	SS-39	26-Apr-99	0-0.5
E2	SS-39	26-Apr-99	0.5-2
E2	SS-40	26-Apr-99	0-0.5
E2	SS-40	26-Apr-99	0.5-2
E3	SB163	21-Oct-08	5-7
E3	SB164	21-Oct-08	5-7
E3	SB165	21-Oct-08	5-7
E3	SB166	21-Oct-08	5-7
E3	SB32	10-Oct-02	8-9
E3	SB32	15-Oct-02	5-10
E3	SB33	10-Oct-02	8-9
E3	SB33	15-Oct-02	0-5
E3	SS27	24-Oct-02	0-0.25

TABLE B-2
SAMPLE LIST - AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
E3	SS31	01-Nov-02	0-0.25
E3	SS-33	26-Apr-99	0-0.5
E3	SS-33	26-Apr-99	0.5-2
E3	SS-34	26-Apr-99	0-0.5
E3	SS-34	26-Apr-99	0.5-2
E3	SS-35	26-Apr-99	0-0.5
E3	SS-35	26-Apr-99	0.5-2
E3	SS-36	26-Apr-99	0-0.5
E3	SS-36	26-Apr-99	0.5-2
E3	SS-37	26-Apr-99	0-0.5
E3	SS-37	26-Apr-99	0.5-2
F	MW6D	25-May-04	7-10
F	MW6D	25-May-04	8-8
F	MW7D	17-Nov-08	5-7
F	SB01	03-Oct-02	5-6
F	SB02	14-Oct-02	0-5
F	SB02	14-Oct-02	5-10
F	SB02	22-Oct-02	5-6
F	SB11	14-Oct-02	6-7
F	SB11	17-Oct-02	0-5
F	SB11	17-Oct-02	5-10
F	SB11	18-Oct-02	5-10
F	SB141	30-Oct-08	5-7
F	SS01	08-Oct-02	0-0.25
F	SS-01	27-Apr-99	0-0.5
F	SS-01	27-Apr-99	0.5-2
F	SS-02	27-Apr-99	0-0.5
F	SS-02	27-Apr-99	0.5-2
F	SS-03	27-Apr-99	0-0.5
F	SS-03	27-Apr-99	0.5-2
F	SS-04	27-Apr-99	0-0.5
F	SS-04	27-Apr-99	0.5-2
F	SS-05	27-Apr-99	0-0.5
F	SS-05	27-Apr-99	0.5-2
F	SS-06	27-Apr-99	0-0.5
F	SS-06	27-Apr-99	0.5-2
F	SS-07	27-Apr-99	0-0.5
F	SS-07	27-Apr-99	0.5-2
F	SS08	08-Oct-02	0-0.25
F	SS-08	27-Apr-99	0-0.5
F	SS-08	27-Apr-99	0.5-2
F	SS-09	27-Apr-99	0-0.5

TABLE B-2
SAMPLE LIST - AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
F	SS-09	27-Apr-99	0.5-2
F	SS14	08-Oct-02	0-0.25
F	SS14	09-Oct-02	0-0.25
F	SS17	31-Oct-02	0-0.25
G	MW5	24-May-04	0.5-1.5
G	MW5	24-May-04	1.167-1.167
G	SB119	23-Oct-08	5-7
G	SB120	23-Oct-08	5-7
G	SB18	09-Oct-02	6-7
G	SB18	17-Oct-02	5-10
G	SB39	15-Jul-04	0-2
G	SB39	15-Jul-04	1-1
G	SB39	15-Jul-04	5-10
G	SB39	15-Jul-04	7-7
G	SB40	13-May-04	0-2
G	SB40	13-May-04	1.5-1.5
G	SS23	31-Oct-02	0-0.25
H	MW10	03-Nov-08	5-7
H	SB20	09-Oct-02	8-9
H	SB20	21-Oct-02	5-10
H	SB45	14-May-04	0-4
H	SB45	14-May-04	2.5-2.5
H	SB45	14-May-04	4-5.5
H	SB45	14-May-04	4.5-4.5
H	SB46	21-May-04	0-2
H	SB46	21-May-04	1.5-1.5
H	SB46	21-May-04	5.5-5.5
H	SB46	21-May-04	5.5-7.5
H	SB47	19-May-04	0-1.6
H	SB47	19-May-04	1-1
H	SB47	19-May-04	3-6
H	SB47	19-May-04	4.5-4.5
H	SS10	31-Oct-02	0-0.25
H	SS-14	27-Apr-99	0-0.5
H	SS-14	27-Apr-99	0.5-2
H	SS15	31-Oct-02	0-0.25
H	SS16	01-Nov-02	0-0.25
H	SS18	31-Oct-02	0-0.25
H	SS19	31-Oct-02	0-0.25
I	MW4D	20-May-04	0-2
I	MW4D	20-May-04	3.5-8.5
I	MW8D	11-Nov-08	5-7
I	SB145	21-Oct-08	7-9
I	SB25	03-Oct-02	4-6

TABLE B-2
SAMPLE LIST - AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
I	SB26	21-Oct-02	5-10
I	SB26	23-Oct-02	8-9
I	SB27	17-Oct-02	6-7
I	SB27	22-Oct-02	5-10
I	SB31	21-Oct-02	0-5
I	SB34	22-Oct-02	0-5
I	SB34	22-Oct-02	5-8
I	SB35	10-Oct-02	7-8
I	SB35	22-Oct-02	0-5
I	SB35	22-Oct-02	5-10
I	SB35	23-Oct-02	5-10
I	SB44/MW4D	20-May-04	1.5-1.5
I	SB44/MW4D	20-May-04	6-6
I	SS24	31-Oct-02	0-0.25
I	SS29	01-Nov-02	0-0.25
J	CAP02	11-Nov-08	5-7
J	CAP03	11-Nov-08	2-4
J	CAP03	11-Nov-08	5-7
J	CAP04	11-Nov-08	2-4
J	CAP04	11-Nov-08	5-7
J	CAP06	12-Nov-08	5-7
J	CAP08	12-Nov-08	5-7
J	CAP11	13-Nov-08	5-7
J	CAP13	12-Nov-08	2-3
J	CAP16	13-Nov-08	5-7
J	CAP17	14-Nov-08	5-7
J	CAP18	14-Nov-08	5-7
J	CAP19	13-Nov-08	5-7
J	CAP20	13-Nov-08	2-3
J	CAP23	13-Nov-08	5-7
J	MW3B	20-Nov-08	5-7
J	MW3D	26-May-04	8-8
J	MW3D	27-May-04	0-2
J	MW3D	27-May-04	4-8
J	SB07	09-Oct-02	0-5
J	SB07	09-Oct-02	5-10
J	SB07	04-Nov-02	2-3
J	SB08	09-Oct-02	0-5
J	SB08	09-Oct-02	5-10
J	SB08	14-Oct-02	0-5
J	SB08	31-Oct-02	2-3
J	SB14	09-Oct-02	0-5
J	SB14	16-Oct-02	2-3

TABLE B-2
SAMPLE LIST - AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date	Depth (ft)
J	SB15	11-Oct-02	0-5
J	SB16	18-Oct-02	0-1
J	SB16	23-Oct-02	0-1
J	SB169	27-Oct-08	5-7
J	SB171	27-Oct-08	5-7
J	SB21	04-Oct-02	4-6
J	SB22	10-Oct-02	0-5
J	SB22	17-Oct-02	4-5
J	SB23	10-Oct-02	0-5
J	SB23	10-Oct-02	5-10
J	SB23	11-Oct-02	2-3
J	SB24	09-Oct-02	0-5
J	SB24	10-Oct-02	0-5
J	SB24	10-Oct-02	5-10
J	SB28	21-Oct-02	2-3
J	SB28	23-Oct-02	0-3
J	SB48	18-May-04	0-2
J	SB48	18-May-04	1.5-1.5
J	SB48	18-May-04	3-4
J	SB48	18-May-04	3.5-3.5
J	SB48	18-May-04	6-10
J	SB48	18-May-04	8-8
J	SS05	08-Oct-02	0-0.25
J	SS11	24-Oct-02	0-0.25
J	SS12	31-Oct-02	0-0.25
J	SS150	05-Oct-10	0.5-1
J	SS20	24-Oct-02	0-0.25
J	SS21	31-Oct-02	0-0.25
J	SS-23	26-Apr-99	0-0.5
J	SS-23	26-Apr-99	0.5-2
J	SS-24	26-Apr-99	0-0.5
J	SS-24	26-Apr-99	0.5-2
J	SS-25	26-Apr-99	0-0.5
J	SS-25	26-Apr-99	0.5-2
J	SS-26	26-Apr-99	0-0.5
J	SS-26	26-Apr-99	0.5-2
J	SS-27	26-Apr-99	0-0.5
J	SS-27	26-Apr-99	0.5-2
J	SS28	01-Nov-02	0-0.25

TABLE B-3
SAMPLE LIST - SEDIMENT
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Risk Area	Sample Location	Collection Date
Site Wetlands	SD04	28-Apr-99
Site Wetlands	SD05	28-Apr-99
Site Wetlands	SED10	30-Oct-02
Site Wetlands	SED14	24-May-04

TABLE B-4
SAMPLE LIST - SURFACE WATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Sample Location	Collection Date
SW2	30-Oct-02

TABLE B-5
SAMPLE LIST - GROUNDWATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Parcel	Sample Location	Depth	Collection Date
A	MW10	Shallow	16-Dec-08
A	MW10	Shallow	04-Mar-09
A	MW10	Shallow	15-Jun-09
A	MW10	Shallow	2-Sep-09
A	MW10	Shallow	3-Dec-09
A	MW10	Shallow	12-Mar-10
A	MW10	Shallow	23-Jun-10
A	MW10	Shallow	7-Oct-10
A	MW11D	Deep	15-Dec-08
A	MW11D	Deep	05-Mar-09
A	MW11D	Deep	16-Jun-09
A	MW11D	Deep	2-Sep-09
A	MW11D	Deep	2-Dec-09
A	MW11D	Deep	11-Mar-10
A	MW11D	Deep	21-Jun-10
A	MW11D	Deep	6-Oct-10
A	MW11S	Shallow	16-Dec-08
A	MW11S	Shallow	06-Mar-09
A	MW11S	Shallow	24-Mar-09
A	MW11S	Shallow	16-Jun-09
A	MW11S	Shallow	1-Sep-09
A	MW11S	Shallow	2-Dec-09
A	MW11S	Shallow	11-Mar-10
A	MW11S	Shallow	23-Jun-10
A	MW11S	Shallow	7-Oct-10
A	MW12D	Deep	17-Dec-08
A	MW12D	Deep	06-Mar-09
A	MW12D	Deep	15-Jun-09
A	MW12D	Deep	31-Aug-09
A	MW12D	Deep	30-Nov-09
A	MW12D	Deep	11-Mar-10
A	MW12D	Deep	22-Jun-10
A	MW12D	Deep	6-Oct-10
A	MW12S	Shallow	17-Dec-08
A	MW12S	Shallow	06-Mar-09
A	MW12S	Shallow	23-Mar-09
A	MW12S	Shallow	16-Jun-09
A	MW12S	Shallow	1-Sep-09
A	MW12S	Shallow	8-Mar-10
A	MW12S	Shallow	22-Jun-10
A	MW12S	Shallow	6-Oct-10
A	MW4	Shallow	10-Jun-04
A	MW4	Shallow	17-Dec-08
A	MW4	Shallow	04-Mar-09
A	MW4	Shallow	17-Jun-09
A	MW4	Shallow	1-Sep-09
A	MW4	Shallow	1-Dec-09
A	MW4	Shallow	9-Mar-10
A	MW4	Shallow	22-Jun-10
A	MW4	Shallow	6-Oct-10

TABLE B-5
SAMPLE LIST - GROUNDWATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Parcel	Sample Location	Depth	Collection Date
A	MW4D	Deep	09-Jun-04
A	MW4D	Deep	18-Dec-08
A	MW4D	Deep	03-Mar-09
A	MW4D	Deep	18-Jun-09
A	MW4D	Deep	3-Sep-09
A	MW4D	Deep	1-Dec-09
A	MW4D	Deep	9-Mar-10
A	MW4D	Deep	23-Jun-10
A	MW4D	Deep	6-Oct-10
A	MW5	Shallow	09-Jun-04
A	MW5	Shallow	18-Dec-08
A	MW5	Shallow	06-Mar-09
A	MW5	Shallow	23-Mar-09
A	MW5	Shallow	18-Jun-09
A	MW5	Shallow	3-Sep-09
A	MW5	Shallow	1-Dec-09
A	MW5	Shallow	11-Mar-10
A	MW5	Shallow	24-Jun-10
A	MW5	Shallow	7-Oct-10
A	MW6	Shallow	09-Jun-04
A	MW6	Shallow	17-Dec-08
A	MW6	Shallow	04-Mar-09
A	MW6	Shallow	16-Jun-09
A	MW6	Shallow	2-Sep-09
A	MW6	Shallow	2-Dec-09
A	MW6	Shallow	11-Mar-10
A	MW6	Shallow	22-Jun-10
A	MW6	Shallow	5-Oct-10
A	MW6D	Deep	09-Jun-04
A	MW6D	Deep	18-Dec-08
A	MW6D	Deep	03-Mar-09
A	MW6D	Deep	16-Jun-09
A	MW6D	Deep	2-Sep-09
A	MW6D	Deep	2-Dec-09
A	MW6D	Deep	11-Mar-10
A	MW6D	Deep	22-Jun-10
A	MW6D	Deep	5-Oct-10
A	MW7D	Deep	15-Dec-08
A	MW7D	Deep	05-Mar-09
A	MW7D	Deep	17-Jun-09
A	MW7D	Deep	1-Sep-09
A	MW7D	Deep	1-Dec-09
A	MW7D	Deep	10-Mar-10
A	MW7D	Deep	24-Jun-10
A	MW7D	Deep	5-Oct-10
A	MW7S	Shallow	16-Dec-08
A	MW7S	Shallow	05-Mar-09
A	MW7S	Shallow	24-Mar-09
A	MW7S	Shallow	17-Jun-09
A	MW7S	Shallow	31-Aug-09
A	MW7S	Shallow	1-Dec-09
A	MW7S	Shallow	10-Mar-10
A	MW7S	Shallow	24-Jun-10
A	MW7S	Shallow	5-Oct-10

TABLE B-5
SAMPLE LIST - GROUNDWATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Parcel	Sample Location	Depth	Collection Date
A	MW8D	Deep	16-Dec-08
A	MW8D	Deep	06-Mar-09
A	MW8D	Deep	17-Jun-09
A	MW8D	Deep	2-Sep-09
A	MW8D	Deep	1-Dec-09
A	MW8D	Deep	9-Mar-10
A	MW8D	Deep	22-Jun-10
A	MW8D	Deep	4-Oct-10
A	MW8S	Shallow	17-Dec-08
A	MW8S	Shallow	06-Mar-09
A	MW8S	Shallow	23-Mar-09
A	MW8S	Shallow	17-Jun-09
A	MW8S	Shallow	2-Sep-09
A	MW8S	Shallow	1-Dec-09
A	MW8S	Shallow	9-Mar-10
A	MW8S	Shallow	22-Jun-10
A	MW8S	Shallow	4-Oct-10
A	MW9D	Deep	15-Dec-08
A	MW9D	Deep	05-Mar-09
A	MW9D	Deep	17-Jun-09
A	MW9D	Deep	2-Sep-09
A	MW9D	Deep	3-Dec-09
A	MW9D	Deep	10-Mar-10
A	MW9D	Deep	23-Jun-10
A	MW9D	Deep	5-Oct-10
A	MW9S	Shallow	15-Dec-08
A	MW9S	Shallow	05-Mar-09
A	MW9S	Shallow	23-Mar-09
A	MW9S	Shallow	17-Jun-09
A	MW9S	Shallow	2-Sep-09
A	MW9S	Shallow	3-Dec-09
A	MW9S	Shallow	11-Mar-10
A	MW9S	Shallow	23-Jun-10
A	MW9S	Shallow	5-Oct-10
A	OP1	Shallow	10-Aug-10
A	OP2	Shallow	13-Aug-10
A	OP3	Shallow	13-Aug-10
A	OP4	Shallow	13-Aug-10
A	OP6	Shallow	12-Aug-10
A	OP9	Shallow	12-Aug-10
A	P1	Shallow	10-Aug-10
A	P2	Shallow	10-Aug-10
A	P3	Shallow	10-Aug-10
A	P4	Shallow	9-Aug-10
A	P4	Shallow	10-Aug-10
A	P6	Shallow	11-Aug-10
A	P7	Shallow	11-Aug-10
A	P9	Shallow	12-Aug-10
A	P10	Shallow	12-Aug-10

TABLE B-5
SAMPLE LIST - GROUNDWATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Parcel	Sample Location	Depth	Collection Date
B	MW3	Shallow	09-Jun-04
B	MW3	Shallow	18-Dec-08
B	MW3	Shallow	03-Mar-09
B	MW3	Shallow	16-Jun-09
B	MW3	Shallow	1-Sep-09
B	MW3	Shallow	2-Dec-09
B	MW3	Shallow	9-Mar-10
B	MW3	Shallow	24-Jun-10
B	MW3	Shallow	7-Oct-10
B	MW3B	Deep	18-Dec-08
B	MW3B	Deep	03-Mar-09
B	MW3B	Deep	16-Jun-09
B	MW3B	Deep	1-Sep-09
B	MW3B	Deep	2-Dec-09
B	MW3B	Deep	9-Mar-10
B	MW3B	Deep	25-Jun-10
B	MW3B	Deep	7-Oct-10
B	MW3D	Deep	10-Jun-04
B	MW3D	Deep	21-Dec-08
B	MW3D	Deep	04-Mar-09
B	MW3D	Deep	16-Jun-09
B	MW3D	Deep	31-Aug-09
B	MW3D	Deep	2-Dec-09
B	MW3D	Deep	9-Mar-10
B	MW3D	Deep	24-Jun-10
B	MW3D	Deep	7-Oct-10
B	P12	Shallow	8-Nov-10
B	P15	Shallow	10-Nov-10
B	P18	Shallow	8-Nov-10
B	P18	Shallow	9-Nov-10
B	P19	Shallow	10-Nov-10
B	P20	Shallow	9-Nov-10
B	P21	Shallow	9-Nov-10
B	P21	Shallow	10-Nov-10
B	P27	Shallow	10-Nov-10
B	P36	Shallow	11-Nov-10
B	P39	Shallow	12-Nov-10
B	P40	Shallow	12-Nov-10

APPENDIX C

TABLE C-1
DIOXIN AND FURAN TOXICITY EQUIVALENT FACTORS[a]
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Compound	**TEF**
Dioxins	
Mono-, Di-, and Trichlorodibenzo-p-dioxins	0
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1
Other TCDDs	0
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDDs)	1
Other PeCDDs	0
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxins (HxCDDs)	0.1
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxins (HxCDDs)	0.1
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxins (HxCDDs)	0.1
Other HxCDDs	0
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	0.01
Other HpCDDs	0
Octachlorodibenzo-p-dioxin (OCDD)	0.0003
Furans	
Mono-, Di-, and Trichlorodibenzo-p-furans	0
2,3,7,8-Tetrachlorodibenzo-p-furan (TCDF)	0.1
Other TCDFs	0
1,2,3,7,8-Pentachlorodibenzo-p-furan (PeCDF)	0.03
2,3,4,7,8-Pentachlorodibenzo-p-furans (PeCDF)	0.3
Other PeCDFs	0
1,2,3,4,7,8-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
1,2,3,6,7,8-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
1,2,3,7,8,9-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
2,3,4,6,7,8-Hexachlorodibenzo-p-furans (HxCDFs)	0.1
Other HxCDFs	0
1,2,3,4,6,7,8-Heptachlorodibenzo-p-furans (HpCDFs)	0.01
1,2,3,4,7,8,9-Heptachlorodibenzo-p-furans (HpCDFs)	0.01
Other HpCDFs	0
Octachlorodibenzo-p-furan (OCDF)	0.0003

[a] **The 2005 World Health Organization Re-evaluation of Human and Mammalian Toxic Equivalency Factors for Dioxins and Dioxin-like Compounds**
Martin van den Berg, Linda S. Birnbaum, Michael Denison, Mike De Vito, William Farland, Mark Feeley, Heidelore Fiedler, Helen Hakansson, Annika Hanberg, Laurie Haws, Martin Rose, Stephen Safe, Dieter Schrenk, Chiharu Tohyama, Angelika Tritscher, Jouko Tuomisto, Mats Tysklind, Nigel Walker, and Richard E. Peterson.

Toxicological Sciences Advance Access published **7 July 2006**.
http://www.who.int/ipcs/assessment/tef_update/en/

APPENDIX D

TABLE D-1d1
ProUCL Output for Surface Soil- Area D1
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Surface_D1-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	6970	Minimum of Log Data	8.849
Maximum	10900	Maximum of Log Data	9.297
Mean	9037	Mean of log Data	9.096
Median	9360	SD of log Data	0.168
SD	1466		
Coefficient of Variation	0.162		
Skewness	-0.286		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.903	Shapiro Wilk Test Statistic	0.89
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9797	95% H-UCL	9923
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10955
95% Adjusted-CLT UCL (Chen-1995)	9696	97.5% Chebyshev (MVUE) UCL	11784
95% Modified-t UCL (Johnson-1978)	9791	99% Chebyshev (MVUE) UCL	13412

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	29.87	**Data appear Normal at 5% Significance Level**
Theta Star	302.6	
MLE of Mean	9037	
MLE of Standard Deviation	1654	
nu star	716.8	
Approximate Chi Square Value (.05)	655.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 9733
Adjusted Chi Square Value	646.8	95% Jackknife UCL 9797
		95% Standard Bootstrap UCL 9716
Anderson-Darling Test Statistic	0.517	95% Bootstrap-t UCL 9773
Anderson-Darling 5% Critical Value	0.73	95% Hall's Bootstrap UCL 9654
Kolmogorov-Smirnov Test Statistic	0.176	95% Percentile Bootstrap UCL 9723
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 9743
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 10882
		97.5% Chebyshev(Mean, Sd) UCL 11680
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 13249
95% Approximate Gamma UCL	9879	
95% Adjusted Gamma UCL	10015	

Potential UCL to Use	Use 95% Student's-t UCL 9797

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.9	Minimum of Log Data	0.642
Maximum	6.7	Maximum of Log Data	1.902
Mean	3.508	Mean of log Data	1.189
Median	3.5	SD of log Data	0.376
SD	1.371		
Coefficient of Variation	0.391		
Skewness	1.049		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.917	Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.219	95% H-UCL	4.425
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.187
95% Adjusted-CLT UCL (Chen-1995)	4.287	97.5% Chebyshev (MVUE) UCL	5.915
95% Modified-t UCL (Johnson-1978)	4.239	99% Chebyshev (MVUE) UCL	7.345

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	5.876	**Data appear Normal at 5% Significance Level**
Theta Star	0.597	
MLE of Mean	3.508	
MLE of Standard Deviation	1.447	
nu star	141	
Approximate Chi Square Value (.05)	114.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 4.159
Adjusted Chi Square Value	111	95% Jackknife UCL 4.219
		95% Standard Bootstrap UCL 4.128
Anderson-Darling Test Statistic	0.236	95% Bootstrap-t UCL 4.323
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 4.547
Kolmogorov-Smirnov Test Statistic	0.135	95% Percentile Bootstrap UCL 4.142
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 4.25
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 5.233
		97.5% Chebyshev(Mean, Sd) UCL 5.98
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 7.446
95% Approximate Gamma UCL	4.318	
95% Adjusted Gamma UCL	4.459	

Potential UCL to Use	Use 95% Student's-t UCL 4.219

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.076	Minimum of Log Data	-2.577
Maximum	1.8	Maximum of Log Data	0.588
Mean	0.401	Mean of log Data	-1.384
Median	0.22	SD of log Data	0.902
SD	0.516		
Coefficient of Variation	1.287		
Skewness	2.351		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.601	Shapiro Wilk Test Statistic	0.86
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.668	95% H-UCL	0.793
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.794
95% Adjusted-CLT UCL (Chen-1995)	0.754	97.5% Chebyshev (MVUE) UCL	0.982
95% Modified-t UCL (Johnson-1978)	0.685	99% Chebyshev (MVUE) UCL	1.35

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.959	**Data appear Lognormal at 5% Significance Level**
Theta Star	0.418	
MLE of Mean	0.401	
MLE of Standard Deviation	0.409	
nu star	23.01	
Approximate Chi Square Value (.05)	13.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 0.646
Adjusted Chi Square Value	11.97	95% Jackknife UCL 0.668
		95% Standard Bootstrap UCL 0.628
Anderson-Darling Test Statistic	1.344	95% Bootstrap-t UCL 2.125
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL 2.504
Kolmogorov-Smirnov Test Statistic	0.342	95% Percentile Bootstrap UCL 0.659
Kolmogorov-Smirnov 5% Critical Value	0.251	95% BCA Bootstrap UCL 0.751
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.05
		97.5% Chebyshev(Mean, Sd) UCL 1.331
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.883
95% Approximate Gamma UCL	0.704	
95% Adjusted Gamma UCL	0.771	

Potential UCL to Use	Use 95% H-UCL 0.793

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1d1
ProUCL Output for Surface Soil- Area D1
Scovill Industrial Landfill Site
Waterbury, Connecticut

Benzo(a)pyrene

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.077	Minimum of Log Data	-2.564
Maximum	2.1	Maximum of Log Data	0.742
Mean	0.426	Mean of log Data	-1.393
Median	0.215	SD of log Data	0.969
SD	0.593		
Coefficient of Variation	1.391		
Skewness	2.517		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.599	Shapiro Wilk Test Statistic	0.887
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.734	95% H-UCL	0.917
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.868
95% Adjusted-CLT UCL (Chen-1995)	0.841	97.5% Chebyshev (MVUE) UCL	1.08
95% Modified-t UCL (Johnson-1978)	0.755	99% Chebyshev (MVUE) UCL	1.497

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.851	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.501		
MLE of Mean	0.426		
MLE of Standard Deviation	0.462		
nu star	20.42		
Approximate Chi Square Value (.05)	11.16	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	0.708
Adjusted Chi Square Value	10.13	95% Jackknife UCL	0.734
		95% Standard Bootstrap UCL	0.694
Anderson-Darling Test Statistic	1.126	95% Bootstrap-t UCL	2.172
Anderson-Darling 5% Critical Value	0.755	95% Hall's Bootstrap UCL	2.329
Kolmogorov-Smirnov Test Statistic	0.29	95% Percentile Bootstrap UCL	0.732
Kolmogorov-Smirnov 5% Critical Value	0.252	95% BCA Bootstrap UCL	0.889
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.173
		97.5% Chebyshev(Mean, Sd) UCL	1.496
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.131
95% Approximate Gamma UCL	0.78		
95% Adjusted Gamma UCL	0.859		

Potential UCL to Use	Use 95% H-UCL	0.917

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.1	Minimum of Log Data	-2.303
Maximum	2.7	Maximum of Log Data	0.993
Mean	0.578	Mean of log Data	-1.023
Median	0.33	SD of log Data	0.937
SD	0.739		
Coefficient of Variation	1.28		
Skewness	2.583		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.626	Shapiro Wilk Test Statistic	0.93
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.961	95% H-UCL	1.23
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.197
95% Adjusted-CLT UCL (Chen-1995)	1.098	97.5% Chebyshev (MVUE) UCL	1.486
95% Modified-t UCL (Johnson-1978)	0.987	99% Chebyshev (MVUE) UCL	2.052

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.951	**Data appear Lognormal at 5% Significance Level**
Theta Star	0.607	
MLE of Mean	0.578	
MLE of Standard Deviation	0.592	
nu star	22.83	
Approximate Chi Square Value (.05)	12.96	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 0.928
Adjusted Chi Square Value	11.84	95% Jackknife UCL 0.961
		95% Standard Bootstrap UCL 0.913
Anderson-Darling Test Statistic	0.808	95% Bootstrap-t UCL 2.176
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL 2.865
Kolmogorov-Smirnov Test Statistic	0.287	95% Percentile Bootstrap UCL 0.934
Kolmogorov-Smirnov 5% Critical Value	0.251	95% BCA Bootstrap UCL 1.135
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.508
		97.5% Chebyshev(Mean, Sd) UCL 1.91
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 2.701
95% Approximate Gamma UCL	1.017	
95% Adjusted Gamma UCL	1.113	

Potential UCL to Use	Use 95% H-UCL 1.23

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.082	Minimum of Log Data	-2.501
Maximum	1.9	Maximum of Log Data	0.642
Mean	0.455	Mean of log Data	-1.271
Median	0.285	SD of log Data	0.956
SD	0.559		
Coefficient of Variation	1.228		
Skewness	2.137		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.653	Shapiro Wilk Test Statistic	0.909
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.745	95% H-UCL	1.003
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.961
95% Adjusted-CLT UCL (Chen-1995)	0.827	97.5% Chebyshev (MVUE) UCL	1.194
95% Modified-t UCL (Johnson-1978)	0.762	99% Chebyshev (MVUE) UCL	1.653

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.934	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.488		
MLE of Mean	0.455		
MLE of Standard Deviation	0.471		
nu star	22.42		
Approximate Chi Square Value (.05)	12.65	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	0.721
Adjusted Chi Square Value	11.54	95% Jackknife UCL	0.745
		95% Standard Bootstrap UCL	0.705
Anderson-Darling Test Statistic	0.9	95% Bootstrap-t UCL	1.643
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL	2.427
Kolmogorov-Smirnov Test Statistic	0.294	95% Percentile Bootstrap UCL	0.737
Kolmogorov-Smirnov 5% Critical Value	0.251	95% BCA Bootstrap UCL	0.861
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.159
		97.5% Chebyshev(Mean, Sd) UCL	1.463
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	2.061
95% Approximate Gamma UCL	0.807		
95% Adjusted Gamma UCL	0.884		

Potential UCL to Use		Use 95% H-UCL	1.003

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	12	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	7
		Percent Non-Detects	58.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.028	Minimum Detected	-3.576
Maximum Detected	0.42	Maximum Detected	-0.868
Mean of Detected	0.155	Mean of Detected	-2.52
SD of Detected	0.178	SD of Detected	1.306
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.42	Maximum Non-Detect	-0.868

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.67%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.788	Shapiro Wilk Test Statistic	0.795
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.174	Mean	-2.029
SD	0.109	SD	0.9
95% DL/2 (t) UCL	0.23	95% H-Stat (DL/2) UCL	0.415
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.768
		SD in Log Scale	0.865
		Mean in Original Scale	0.0972
		SD in Original Scale	0.12
		95% t UCL	0.159
		95% Percentile Bootstrap UCL	0.156
		95% BCA Bootstrap UCL	0.182

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.49	**Data appear Normal at 5% Significance Level**	
Theta Star	0.316		
nu star	4.903		
A-D Test Statistic	0.64	**Nonparametric Statistics**	
5% A-D Critical Value	0.694	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.694	Mean	0.116
5% K-S Critical Value	0.365	SD	0.132
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0587
		95% KM (t) UCL	0.222
Assuming Gamma Distribution		95% KM (z) UCL	0.213
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.231
Minimum	0.028	95% KM (bootstrap t) UCL	2.196
Maximum	0.42	95% KM (BCA) UCL	0.223
Mean	0.15	95% KM (Percentile Bootstrap) UCL	0.217
Median	0.142	95% KM (Chebyshev) UCL	0.372
SD	0.112	97.5% KM (Chebyshev) UCL	0.483
k star	1.437	99% KM (Chebyshev) UCL	0.7
Theta star	0.105		
Nu star	34.49	**Potential UCLs to Use**	
AppChi2	22.06	95% KM (t) UCL	0.222
95% Gamma Approximate UCL	0.235	95% KM (Percentile Bootstrap) UCL	0.217
95% Adjusted Gamma UCL	0.252		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	8.8	Minimum of Log Data	2.175
Maximum	19.5	Maximum of Log Data	2.97
Mean	13.32	Mean of log Data	2.556
Median	12.95	SD of log Data	0.267
SD	3.556		
Coefficient of Variation	0.267		
Skewness	0.422		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.942	Shapiro Wilk Test Statistic	0.954
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15.16	95% H-UCL	15.56
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17.82
95% Adjusted-CLT UCL (Chen-1995)	15.14	97.5% Chebyshev (MVUE) UCL	19.76
95% Modified-t UCL (Johnson-1978)	15.18	99% Chebyshev (MVUE) UCL	23.59

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	11.7	**Data appear Normal at 5% Significance Level**
Theta Star	1.138	
MLE of Mean	13.32	
MLE of Standard Deviation	3.894	
nu star	280.7	
Approximate Chi Square Value (.05)	242.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 15.01
Adjusted Chi Square Value	237.6	95% Jackknife UCL 15.16
		95% Standard Bootstrap UCL 14.92
Anderson-Darling Test Statistic	0.249	95% Bootstrap-t UCL 15.28
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 15.03
Kolmogorov-Smirnov Test Statistic	0.122	95% Percentile Bootstrap UCL 14.87
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 15.1
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 17.79
		97.5% Chebyshev(Mean, Sd) UCL 19.73
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 23.53
95% Approximate Gamma UCL	15.39	
95% Adjusted Gamma UCL	15.74	

Potential UCL to Use	Use 95% Student's-t UCL 15.16

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.2	Minimum of Log Data	1.435
Maximum	8.5	Maximum of Log Data	2.14
Mean	5.683	Mean of log Data	1.722
Median	5.5	SD of log Data	0.178
SD	1.094		
Coefficient of Variation	0.193		
Skewness	1.532		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.883	Shapiro Wilk Test Statistic	0.946
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.251	95% H-UCL	6.274
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.959
95% Adjusted-CLT UCL (Chen-1995)	6.352	97.5% Chebyshev (MVUE) UCL	7.512
95% Modified-t UCL (Johnson-1978)	6.274	99% Chebyshev (MVUE) UCL	8.599

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	24.73	**Data appear Normal at 5% Significance Level**
Theta Star	0.23	
MLE of Mean	5.683	
MLE of Standard Deviation	1.143	
nu star	593.6	
Approximate Chi Square Value (.05)	538.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 6.203
Adjusted Chi Square Value	530	95% Jackknife UCL 6.251
		95% Standard Bootstrap UCL 6.188
Anderson-Darling Test Statistic	0.362	95% Bootstrap-t UCL 6.494
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 9.039
Kolmogorov-Smirnov Test Statistic	0.181	95% Percentile Bootstrap UCL 6.217
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 6.358
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.061
		97.5% Chebyshev(Mean, Sd) UCL 7.656
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.827
95% Approximate Gamma UCL	6.27	
95% Adjusted Gamma UCL	6.365	

Potential UCL to Use	Use 95% Student's-t UCL 6.251

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.038	Minimum Detected	-3.27
Maximum Detected	0.53	Maximum Detected	-0.635
Mean of Detected	0.139	Mean of Detected	-2.451
SD of Detected	0.171	SD of Detected	0.913
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.36	Maximum Non-Detect	-1.022

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	83.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.623	Shapiro Wilk Test Statistic	0.785
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.145	Mean	-2.331
SD	0.156	SD	0.872
95% DL/2 (t) UCL	0.226	95% H-Stat (DL/2) UCL	0.289
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.494
		SD in Log Scale	0.832
		Mean in Original Scale	0.126
		SD in Original Scale	0.157
		95% t UCL	0.208
		95% Percentile Bootstrap UCL	0.204
		95% BCA Bootstrap UCL	0.236

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.903	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.153		
nu star	18.05		
A-D Test Statistic	1.377	**Nonparametric Statistics**	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	0.125
5% K-S Critical Value	0.273	SD	0.151
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0461
		95% KM (t) UCL	0.208
Assuming Gamma Distribution		95% KM (z) UCL	0.201
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.207
Minimum	0.038	95% KM (bootstrap t) UCL	0.717
Maximum	0.53	95% KM (BCA) UCL	0.203
Mean	0.138	95% KM (Percentile Bootstrap) UCL	0.205
Median	0.0755	95% KM (Chebyshev) UCL	0.326
SD	0.155	97.5% KM (Chebyshev) UCL	0.413
k star	1.113	99% KM (Chebyshev) UCL	0.584
Theta star	0.124		
Nu star	26.7	**Potential UCLs to Use**	
AppChi2	15.92	95% KM (Chebyshev) UCL	0.326
95% Gamma Approximate UCL	0.232		
95% Adjusted Gamma UCL	0.252		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dimethyl phthalate

General Statistics

Number of Valid Data	12	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	11
		Percent Non-Detects	91.67%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Dimethyl phthalate was not processed!

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.064	Minimum of Log Data	-2.749
Maximum	1.7	Maximum of Log Data	0.531
Mean	0.307	Mean of log Data	-1.748
Median	0.135	SD of log Data	0.933
SD	0.474		
Coefficient of Variation	1.541		
Skewness	2.783		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.524	Shapiro Wilk Test Statistic	0.765
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.553	95% H-UCL	0.591
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.577
95% Adjusted-CLT UCL (Chen-1995)	0.65	97.5% Chebyshev (MVUE) UCL	0.715
95% Modified-t UCL (Johnson-1978)	0.571	99% Chebyshev (MVUE) UCL	0.988

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.816	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.377		
MLE of Mean	0.307		
MLE of Standard Deviation	0.34		
nu star	19.58		
Approximate Chi Square Value (.05)	10.54	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	0.532
Adjusted Chi Square Value	9.542	95% Jackknife UCL	0.553
		95% Standard Bootstrap UCL	0.518
Anderson-Darling Test Statistic	1.901	95% Bootstrap-t UCL	3.087
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL	2.665
Kolmogorov-Smirnov Test Statistic	0.411	95% Percentile Bootstrap UCL	0.525
Kolmogorov-Smirnov 5% Critical Value	0.252	95% BCA Bootstrap UCL	0.632
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.904
		97.5% Chebyshev(Mean, Sd) UCL	1.162
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.668
95% Approximate Gamma UCL	0.571		
95% Adjusted Gamma UCL	0.631		

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	0.904

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	9700	Minimum of Log Data	9.18
Maximum	17500	Maximum of Log Data	9.77
Mean	13567	Mean of log Data	9.502
Median	14250	SD of log Data	0.173
SD	2235		
Coefficient of Variation	0.165		
Skewness	-0.375		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.906
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14725	95% H-UCL	14950
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16544
95% Adjusted-CLT UCL (Chen-1995)	14553	97.5% Chebyshev (MVUE) UCL	17829
95% Modified-t UCL (Johnson-1978)	14714	99% Chebyshev (MVUE) UCL	20354

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	28.4	**Data appear Normal at 5% Significance Level**
Theta Star	477.7	
MLE of Mean	13567	
MLE of Standard Deviation	2546	
nu star	681.6	
Approximate Chi Square Value (.05)	622	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 14628
Adjusted Chi Square Value	613.3	95% Jackknife UCL 14725
		95% Standard Bootstrap UCL 14589
Anderson-Darling Test Statistic	0.586	95% Bootstrap-t UCL 14619
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 14552
Kolmogorov-Smirnov Test Statistic	0.215	95% Percentile Bootstrap UCL 14550
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 14525
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 16379
		97.5% Chebyshev(Mean, Sd) UCL 17596
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 19986
95% Approximate Gamma UCL	14866	
95% Adjusted Gamma UCL	15077	

Potential UCL to Use	Use 95% Student's-t UCL 14725

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	187	Minimum of Log Data	5.231
Maximum	445	Maximum of Log Data	6.098
Mean	283.4	Mean of log Data	5.618
Median	271.5	SD of log Data	0.249
SD	73.07		
Coefficient of Variation	0.258		
Skewness	0.883		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.947	Shapiro Wilk Test Statistic	0.982
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	321.3	95% H-UCL	327.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	372.5
95% Adjusted-CLT UCL (Chen-1995)	323.9	97.5% Chebyshev (MVUE) UCL	411.2
95% Modified-t UCL (Johnson-1978)	322.2	99% Chebyshev (MVUE) UCL	487.1

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	13.15	**Data appear Normal at 5% Significance Level**
Theta Star	21.55	
MLE of Mean	283.4	
MLE of Standard Deviation	78.16	
nu star	315.6	
Approximate Chi Square Value (.05)	275.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 318.1
Adjusted Chi Square Value	269.7	95% Jackknife UCL 321.3
		95% Standard Bootstrap UCL 316.6
Anderson-Darling Test Statistic	0.178	95% Bootstrap-t UCL 332.9
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 333
Kolmogorov-Smirnov Test Statistic	0.131	95% Percentile Bootstrap UCL 317.9
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 323.3
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 375.4
		97.5% Chebyshev(Mean, Sd) UCL 415.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 493.3
95% Approximate Gamma UCL	324.7	
95% Adjusted Gamma UCL	331.6	

Potential UCL to Use	Use 95% Student's-t UCL 321.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	12	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	6
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.07	Minimum Detected	-2.659
Maximum Detected	1.3	Maximum Detected	0.262
Mean of Detected	0.461	Mean of Detected	-1.546
SD of Detected	0.576	SD of Detected	1.346
Minimum Non-Detect	0.08	Minimum Non-Detect	-2.526
Maximum Non-Detect	0.95	Maximum Non-Detect	-0.0513

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	83.33%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.698	Shapiro Wilk Test Statistic	0.75
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.325	Mean	-1.797
SD	0.431	SD	1.145
95% DL/2 (t) UCL	0.549	95% H-Stat (DL/2) UCL	0.959
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.034
		SD in Log Scale	1.075
		Mean in Original Scale	0.273
		SD in Original Scale	0.436
		95% t UCL	0.499
		95% Percentile Bootstrap UCL	0.474
		95% BCA Bootstrap UCL	0.52

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.498	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.926		
nu star	5.971		
A-D Test Statistic	0.939	**Nonparametric Statistics**	
5% A-D Critical Value	0.72	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.72	Mean	0.273
5% K-S Critical Value	0.343	SD	0.417
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.132
		95% KM (t) UCL	0.509
Assuming Gamma Distribution		95% KM (z) UCL	0.49
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.497
Minimum	0.07	95% KM (bootstrap t) UCL	4.092
Maximum	1.3	95% KM (BCA) UCL	0.525
Mean	0.413	95% KM (Percentile Bootstrap) UCL	0.488
Median	0.401	95% KM (Chebyshev) UCL	0.848
SD	0.396	97.5% KM (Chebyshev) UCL	1.097
k star	1.079	99% KM (Chebyshev) UCL	1.586
Theta star	0.383		
Nu star	25.9	**Potential UCLs to Use**	
AppChi2	15.3	95% KM (BCA) UCL	0.525
95% Gamma Approximate UCL	0.7		
95% Adjusted Gamma UCL	0.761		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	12	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	11
		Percent Non-Detects	91.67%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Thallium was not processed!

Vanadium

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	15.8	Minimum of Log Data	2.76
Maximum	32.1	Maximum of Log Data	3.469
Mean	24.12	Mean of log Data	3.167
Median	24.2	SD of log Data	0.186
SD	4.308		
Coefficient of Variation	0.179		
Skewness	-0.0573		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.975	Shapiro Wilk Test Statistic	0.955
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	26.35	95% H-UCL	26.79
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	29.81
95% Adjusted-CLT UCL (Chen-1995)	26.14	97.5% Chebyshev (MVUE) UCL	32.27
95% Modified-t UCL (Johnson-1978)	26.35	99% Chebyshev (MVUE) UCL	37.1

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	24.52	**Data appear Normal at 5% Significance Level**
Theta Star	0.984	
MLE of Mean	24.12	
MLE of Standard Deviation	4.87	
nu star	588.5	
Approximate Chi Square Value (.05)	533.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 26.16
Adjusted Chi Square Value	525.2	95% Jackknife UCL 26.35
		95% Standard Bootstrap UCL 26.09
Anderson-Darling Test Statistic	0.285	95% Bootstrap-t UCL 26.12
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 26.41
Kolmogorov-Smirnov Test Statistic	0.146	95% Percentile Bootstrap UCL 26.05
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 25.97
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 29.54
		97.5% Chebyshev(Mean, Sd) UCL 31.88
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 36.49
95% Approximate Gamma UCL	26.62	
95% Adjusted Gamma UCL	27.02	

Potential UCL to Use	Use 95% Student's-t UCL 26.35

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1e1
ProUCL Output forSurface Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL\Surface_E1-ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Carbazole

General Statistics

Number of Valid Data	13	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	10
		Percent Non-Detects	76.92%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.034	Minimum Detected	-3.381
Maximum Detected	0.99	Maximum Detected	-0.0101
Mean of Detected	0.359	Mean of Detected	-2.11
SD of Detected	0.547	SD of Detected	1.832
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.4	Maximum Non-Detect	-0.916

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.31%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.765	Shapiro Wilk Test Statistic	0.847
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.227	Mean	-1.773
SD	0.236	SD	0.773
95% DL/2 (t) UCL	0.344	95% H-Stat (DL/2) UCL	0.639
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.852
		SD in Log Scale	1.009
		Mean in Original Scale	0.125
		SD in Original Scale	0.262
		95% Percentile Bootstrap UCL	0.267
		95% BCA Bootstrap UCL	0.343
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Lognormal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.116
5% K-S Critical Value	N/A	SD	0.252
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.086

TABLE D-1e1
ProUCL Output forSurface Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
95% Gamma Approximate UCL	N/A
95% Adjusted Gamma UCL	N/A

Note: DL/2 is not a recommended method.

95% KM (t) UCL	0.27
95% KM (z) UCL	0.258
95% KM (jackknife) UCL	0.248
95% KM (bootstrap t) UCL	1.521
95% KM (BCA) UCL	0.99
95% KM (Percentile Bootstrap) UCL	0.99
95% KM (Chebyshev) UCL	0.491
97.5% KM (Chebyshev) UCL	0.653
99% KM (Chebyshev) UCL	0.972

Potential UCLs to Use

97.5% KM (Chebyshev) UCL	0.653

Di-n-octyl phthalate

General Statistics

Number of Valid Data	14	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	13
		Percent Non-Detects	92.86%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Di-n-octyl phthalate was not processed!

Benzo(a)anthracene

General Statistics

Number of Valid Data	14	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	2
		Percent Non-Detects	14.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.047	Minimum Detected	-3.058
Maximum Detected	3.3	Maximum Detected	1.194
Mean of Detected	0.42	Mean of Detected	-1.946
SD of Detected	0.928	SD of Detected	1.246
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	85.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.451	Shapiro Wilk Test Statistic	0.797
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.385	Mean	-1.919
SD	0.858	SD	1.148
95% DL/2 (t) UCL	0.791	95% H-Stat (DL/2) UCL	0.986
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.988
		SD in Log Scale	1.151
		Mean in Original Scale	0.375
		SD in Original Scale	0.861
		95% Percentile Bootstrap UCL	0.817
		95% BCA Bootstrap UCL	1.073

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.488	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.861		
nu star	11.71		
A-D Test Statistic	1.804	**Nonparametric Statistics**	
5% A-D Critical Value	0.779	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.779	Mean	0.374
5% K-S Critical Value	0.257	SD	0.83
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.232
		95% KM (t) UCL	0.785
Assuming Gamma Distribution		95% KM (z) UCL	0.755
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.782
Minimum	0.047	95% KM (bootstrap t) UCL	5.224
Maximum	3.3	95% KM (BCA) UCL	0.819
Mean	0.421	95% KM (Percentile Bootstrap) UCL	0.79
Median	0.12	95% KM (Chebyshev) UCL	1.385
SD	0.853	97.5% KM (Chebyshev) UCL	1.822
k star	0.566	99% KM (Chebyshev) UCL	2.681
Theta star	0.745		
Nu star	15.84	**Potential UCLs to Use**	
AppChi2	7.846	97.5% KM (Chebyshev) UCL	1.822
95% Gamma Approximate UCL	0.85		
95% Adjusted Gamma UCL	0.938		

Note: DL/2 is not a recommended method.

Benzo(a)pyrene

General Statistics

Number of Valid Data	14	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	2
		Percent Non-Detects	14.29%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.058	Minimum Detected	-2.847
Maximum Detected	2.7	Maximum Detected	0.993
Mean of Detected	0.36	Mean of Detected	-1.954
SD of Detected	0.754	SD of Detected	1.148
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	85.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.453	Shapiro Wilk Test Statistic	0.765
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.333	Mean	-1.926
SD	0.697	SD	1.059
95% DL/2 (t) UCL	0.663	95% H-Stat (DL/2) UCL	0.764
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.992
		SD in Log Scale	1.061
		Mean in Original Scale	0.324
		SD in Original Scale	0.699
		95% Percentile Bootstrap UCL	0.663
		95% BCA Bootstrap UCL	0.883
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.547	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.658		
nu star	13.12		
A-D Test Statistic	1.869	**Nonparametric Statistics**	
5% A-D Critical Value	0.773	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.773	Mean	0.322
5% K-S Critical Value	0.256	SD	0.674
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.188
		95% KM (t) UCL	0.656
Assuming Gamma Distribution		95% KM (z) UCL	0.632
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.654
Minimum	0.058	95% KM (bootstrap t) UCL	3.899
Maximum	2.7	95% KM (BCA) UCL	0.687
Mean	0.36	95% KM (Percentile Bootstrap) UCL	0.672
Median	0.125	95% KM (Chebyshev) UCL	1.143
SD	0.693	97.5% KM (Chebyshev) UCL	1.498
k star	0.637	99% KM (Chebyshev) UCL	2.196
Theta star	0.566		
Nu star	17.83	**Potential UCLs to Use**	
AppChi2	9.266	97.5% KM (Chebyshev) UCL	1.498
95% Gamma Approximate UCL	0.693		
95% Adjusted Gamma UCL	0.759		

Note: DL/2 is not a recommended method.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	14	Number of Detected Data	12
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	14.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.065	Minimum Detected	-2.733
Maximum Detected	2.3	Maximum Detected	0.833
Mean of Detected	0.378	Mean of Detected	-1.627
SD of Detected	0.636	SD of Detected	0.999
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.513	Shapiro Wilk Test Statistic	0.819
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.349	Mean	-1.646
SD	0.59	SD	0.921
95% DL/2 (t) UCL	0.628	95% H-Stat (DL/2) UCL	0.697
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.661
		SD in Log Scale	0.923
		Mean in Original Scale	0.346
		SD in Original Scale	0.591
		95% Percentile Bootstrap UCL	0.623
		95% BCA Bootstrap UCL	0.81
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.727	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.52		
nu star	17.44		
A-D Test Statistic	1.6	**Nonparametric Statistics**	
5% A-D Critical Value	0.76	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.76	Mean	0.344
5% K-S Critical Value	0.253	SD	0.57
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.159
		95% KM (t) UCL	0.626
Assuming Gamma Distribution		95% KM (z) UCL	0.606
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.625
Minimum	0.065	95% KM (bootstrap t) UCL	2.436
Maximum	2.3	95% KM (BCA) UCL	0.632
Mean	0.377	95% KM (Percentile Bootstrap) UCL	0.637
Median	0.17	95% KM (Chebyshev) UCL	1.039
SD	0.585	97.5% KM (Chebyshev) UCL	1.339
k star	0.855	99% KM (Chebyshev) UCL	1.929
Theta star	0.442		
Nu star	23.93	**Potential UCLs to Use**	
AppChi2	13.8	95% KM (Chebyshev) UCL	1.039
95% Gamma Approximate UCL	0.655		
95% Adjusted Gamma UCL	0.707		

Note: DL/2 is not a recommended method.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	14	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	7
		Percent Non-Detects	50.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.031	Minimum Detected	-3.474
Maximum Detected	0.32	Maximum Detected	-1.139
Mean of Detected	0.107	Mean of Detected	-2.541
SD of Detected	0.103	SD of Detected	0.788
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.465	Maximum Non-Detect	-0.766

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.727	Shapiro Wilk Test Statistic	0.891
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.15	Mean	-2.097
SD	0.0839	SD	0.71
95% DL/2 (t) UCL	0.189	95% H-Stat (DL/2) UCL	0.555
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.541
		SD in Log Scale	0.535
		Mean in Original Scale	0.0927
		SD in Original Scale	0.0713
		95% Percentile Bootstrap UCL	0.126
		95% BCA Bootstrap UCL	0.143

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.122	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	0.0951		
nu star	15.7		
A-D Test Statistic	0.658	**Nonparametric Statistics**	
5% A-D Critical Value	0.717	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.717	Mean	0.107
5% K-S Critical Value	0.316	SD	0.0951
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.0388
		95% KM (t) UCL	0.175
Assuming Gamma Distribution		95% KM (z) UCL	0.171
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.178
Minimum	0.031	95% KM (bootstrap t) UCL	0.567
Maximum	0.32	95% KM (BCA) UCL	0.171
Mean	0.107	95% KM (Percentile Bootstrap) UCL	0.175
Median	0.108	95% KM (Chebyshev) UCL	0.276
SD	0.0698	97.5% KM (Chebyshev) UCL	0.349

k star	2.76
Theta star	0.0389
Nu star	77.29
AppChi2	58.04
95% Gamma Approximate UCL	0.143
95% Adjusted Gamma UCL	0.149

Note: DL/2 is not a recommended method.

99% KM (Chebyshev) UCL	0.493

Potential UCLs to Use

95% KM (t) UCL	0.175

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	13	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	15.38%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.043	Minimum Detected	-3.147
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.227	Mean of Detected	-2.161
SD of Detected	0.397	SD of Detected	1.019
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	92.31%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.497	Shapiro Wilk Test Statistic	0.835
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.218	Mean	-2.099
SD	0.363	SD	0.943
95% DL/2 (t) UCL	0.398	95% H-Stat (DL/2) UCL	0.583
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.184
		SD in Log Scale	0.932
		Mean in Original Scale	0.207
		SD in Original Scale	0.366
		95% Percentile Bootstrap UCL	0.404
		95% BCA Bootstrap UCL	0.512
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.691	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.328		
nu star	15.2		
A-D Test Statistic	1.336	**Nonparametric Statistics**	
5% A-D Critical Value	0.757	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.757	Mean	0.209
5% K-S Critical Value	0.264	SD	0.353
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.103
		95% KM (t) UCL	0.392
Assuming Gamma Distribution		95% KM (z) UCL	0.378
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.391
Minimum	0.043	95% KM (bootstrap t) UCL	1.393
Maximum	1.4	95% KM (BCA) UCL	0.418
Mean	0.226	95% KM (Percentile Bootstrap) UCL	0.406
Median	0.11	95% KM (Chebyshev) UCL	0.658
SD	0.363	97.5% KM (Chebyshev) UCL	0.852
k star	0.825	99% KM (Chebyshev) UCL	1.234
Theta star	0.274		
Nu star	21.45	**Potential UCLs to Use**	
AppChi2	11.93	97.5% KM (Chebyshev) UCL	0.852
95% Gamma Approximate UCL	0.406		
95% Adjusted Gamma UCL	0.443		

Note: DL/2 is not a recommended method.

Aroclor-1254 (PCB-1254)

General Statistics

Number of Valid Data	14	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	10
		Percent Non-Detects	71.43%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.043	Minimum Detected	-3.147
Maximum Detected	0.13	Maximum Detected	-2.04
Mean of Detected	0.0791	Mean of Detected	-2.619
SD of Detected	0.0375	SD of Detected	0.468
Minimum Non-Detect	0.034	Minimum Non-Detect	-3.381
Maximum Non-Detect	0.04	Maximum Non-Detect	-3.219

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	71.43%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.996
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0358	Mean	-3.599
SD	0.0337	SD	0.683
95% DL/2 (t) UCL	0.0517	95% H-Stat (DL/2) UCL	0.0411
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.00415	Mean in Log Scale	-4.008
SD	0.0631	SD in Log Scale	1.001
95% MLE (t) UCL	0.034	Mean in Original Scale	0.0306
95% MLE (Tiku) UCL	0.0581	SD in Original Scale	0.0368
		95% Percentile Bootstrap UCL	0.0466
		95% BCA Bootstrap UCL	0.0509

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.724	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0459		
nu star	13.79		
A-D Test Statistic	0.215	**Nonparametric Statistics**	
5% A-D Critical Value	0.659	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.659	Mean	0.0533
5% K-S Critical Value	0.396	SD	0.0238
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.00735
		95% KM (t) UCL	0.0663
Assuming Gamma Distribution		95% KM (z) UCL	0.0654
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0675
Minimum	0.043	95% KM (bootstrap t) UCL	0.067
Maximum	0.13	95% KM (BCA) UCL	N/A
Mean	0.0747	95% KM (Percentile Bootstrap) UCL	0.0889
Median	0.0721	95% KM (Chebyshev) UCL	0.0854
SD	0.0223	97.5% KM (Chebyshev) UCL	0.0992

TABLE D-1e1
ProUCL Output forSurface Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	10.24	99% KM (Chebyshev) UCL	0.126
Theta star	0.00729		
Nu star	286.8	**Potential UCLs to Use**	
AppChi2	248.6	95% KM (t) UCL	0.0663
95% Gamma Approximate UCL	0.0862	95% KM (Percentile Bootstrap) UCL	0.0889
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Aluminum

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	3730	Minimum of Log Data	8.224
Maximum	12100	Maximum of Log Data	9.401
Mean	6919	Mean of log Data	8.792
Median	6960	SD of log Data	0.333
SD	2263		
Coefficient of Variation	0.327		
Skewness	0.653		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.951	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7990	95% H-UCL	8303
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9643
95% Adjusted-CLT UCL	8026	97.5% Chebyshev (MVUE) UCL	10820
95% Modified-t UCL	8007	99% Chebyshev (MVUE) UCL	13130

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	8.005	**Data appear Normal at 5% Significance Level**
Theta Star	864.3	
MLE of Mean	6919	
MLE of Standard Deviation	2445	
nu star	224.1	
Approximate Chi Square Value (.05)	190.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 7913
Adjusted Chi Square Value	186.4	95% Jackknife UCL 7990
		95% Standard Bootstrap UCL 7858
Anderson-Darling Test Statistic	0.253	95% Bootstrap-t UCL 8035
Anderson-Darling 5% Critical Value	0.735	95% Hall's Bootstrap UCL 8275
Kolmogorov-Smirnov Test Statistic	0.131	95% Percentile Bootstrap UCL 7869
Kolmogorov-Smirnov 5% Critical Value	0.229	95% BCA Bootstrap UCL 8029
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 9555
		97.5% Chebyshev(Mean, Sd) UCL 10695
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12936
95% Approximate Gamma UCL	8141	
95% Adjusted Gamma UCL	8321	

Potential UCL to Use	Use 95% Student's-t UCL 7990

Arsenic

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.2	Minimum of Log Data	0.182
Maximum	6.1	Maximum of Log Data	1.808
Mean	2.782	Mean of log Data	0.925
Median	2.55	SD of log Data	0.447
SD	1.395		
Coefficient of Variation	0.501		
Skewness	1.555		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.816	Shapiro Wilk Test Statistic	0.94
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.442	95% H-UCL	3.573
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.239
95% Adjusted-CLT UCL	3.561	97.5% Chebyshev (MVUE) UCL	4.877
95% Modified-t UCL	3.468	99% Chebyshev (MVUE) UCL	6.129

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.177	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.666	
MLE of Mean	2.782	
MLE of Standard Deviation	1.361	
nu star	116.9	
Approximate Chi Square Value (.05)	92.98	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 3.395
Adjusted Chi Square Value	90.14	95% Jackknife UCL 3.442
		95% Standard Bootstrap UCL 3.366
Anderson-Darling Test Statistic	0.592	95% Bootstrap-t UCL 3.998
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL 7.602
Kolmogorov-Smirnov Test Statistic	0.222	95% Percentile Bootstrap UCL 3.425
Kolmogorov-Smirnov 5% Critical Value	0.229	95% BCA Bootstrap UCL 3.514
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 4.407
		97.5% Chebyshev(Mean, Sd) UCL 5.11
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 6.491
95% Approximate Gamma UCL	3.499	
95% Adjusted Gamma UCL	3.609	

Potential UCL to Use	Use 95% Approximate Gamma UCL 3.499

Cobalt

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.1	Minimum of Log Data	0.742
Maximum	6.7	Maximum of Log Data	1.902
Mean	4.204	Mean of log Data	1.401
Median	4.05	SD of log Data	0.278
SD	1.124		
Coefficient of Variation	0.267		
Skewness	0.471		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Test Statistic	0.96
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.736	95% H-UCL	4.88
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.587
95% Adjusted-CLT UCL	4.738	97.5% Chebyshev (MVUE) UCL	6.184
95% Modified-t UCL	4.742	99% Chebyshev (MVUE) UCL	7.355

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.56	**Data appear Normal at 5% Significance Level**	
Theta Star	0.364		
MLE of Mean	4.204		
MLE of Standard Deviation	1.237		
nu star	323.6		
Approximate Chi Square Value (.05)	282.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0312	95% CLT UCL	4.698
Adjusted Chi Square Value	277.9	95% Jackknife UCL	4.736
		95% Standard Bootstrap UCL	4.7
Anderson-Darling Test Statistic	0.233	95% Bootstrap-t UCL	4.816
Anderson-Darling 5% Critical Value	0.734	95% Hall's Bootstrap UCL	4.883
Kolmogorov-Smirnov Test Statistic	0.134	95% Percentile Bootstrap UCL	4.7
Kolmogorov-Smirnov 5% Critical Value	0.228	95% BCA Bootstrap UCL	4.711
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5.513
		97.5% Chebyshev(Mean, Sd) UCL	6.08
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7.193
95% Approximate Gamma UCL	4.808		
95% Adjusted Gamma UCL	4.895		

Potential UCL to Use		Use 95% Student's-t UCL	4.736

Iron

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	6060	Minimum of Log Data	8.709
Maximum	14800	Maximum of Log Data	9.602
Mean	10668	Mean of log Data	9.25
Median	10750	SD of log Data	0.241
SD	2361		
Coefficient of Variation	0.221		
Skewness	-0.332		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.975	Shapiro Wilk Test Statistic	0.939
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	11785	95% H-UCL	12112
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	13700
95% Adjusted-CLT UCL	11646	97.5% Chebyshev (MVUE) UCL	15005
95% Modified-t UCL	11776	99% Chebyshev (MVUE) UCL	17568

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	15.72	**Data appear Normal at 5% Significance Level**
Theta Star	678.8	
MLE of Mean	10668	
MLE of Standard Deviation	2691	
nu star	440	
Approximate Chi Square Value (.05)	392.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 11706
Adjusted Chi Square Value	386.4	95% Jackknife UCL 11785
		95% Standard Bootstrap UCL 11663
Anderson-Darling Test Statistic	0.334	95% Bootstrap-t UCL 11714
Anderson-Darling 5% Critical Value	0.734	95% Hall's Bootstrap UCL 11621
Kolmogorov-Smirnov Test Statistic	0.148	95% Percentile Bootstrap UCL 11713
Kolmogorov-Smirnov 5% Critical Value	0.228	95% BCA Bootstrap UCL 11613
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 13419
		97.5% Chebyshev(Mean, Sd) UCL 14609
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 16947
95% Approximate Gamma UCL	11963	
95% Adjusted Gamma UCL	12148	

Potential UCL to Use		Use 95% Student's-t UCL 11785

Manganese

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	140	Minimum of Log Data	4.942
Maximum	308	Maximum of Log Data	5.73
Mean	236.5	Mean of log Data	5.43
Median	256	SD of log Data	0.286
SD	62.45		
Coefficient of Variation	0.264		
Skewness	-0.376		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.858	Shapiro Wilk Test Statistic	0.849
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	266	95% H-UCL	275.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	316.7
95% Adjusted-CLT UCL	262.1	97.5% Chebyshev (MVUE) UCL	351.2
95% Modified-t UCL	265.7	99% Chebyshev (MVUE) UCL	419

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	11.06	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	21.38	
MLE of Mean	236.5	
MLE of Standard Deviation	71.1	
nu star	309.7	
Approximate Chi Square Value (.05)	270	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 263.9
Adjusted Chi Square Value	265	95% Jackknife UCL 266
		95% Standard Bootstrap UCL 263.1
Anderson-Darling Test Statistic	0.948	95% Bootstrap-t UCL 264.4
Anderson-Darling 5% Critical Value	0.734	95% Hall's Bootstrap UCL 259.8
Kolmogorov-Smirnov Test Statistic	0.252	95% Percentile Bootstrap UCL 263.1
Kolmogorov-Smirnov 5% Critical Value	0.229	95% BCA Bootstrap UCL 261.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 309.2
		97.5% Chebyshev(Mean, Sd) UCL 340.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 402.5
95% Approximate Gamma UCL	271.3	
95% Adjusted Gamma UCL	276.3	

Potential UCL to Use	
Use 95% Student's-t UCL	266
or 95% Modified-t UCL	265.7

Vanadium

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	8.7	Minimum of Log Data	2.163
Maximum	64.9	Maximum of Log Data	4.173
Mean	27.55	Mean of log Data	3.172
Median	22.4	SD of log Data	0.543
SD	16.84		
Coefficient of Variation	0.611		
Skewness	1.613		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.785	Shapiro Wilk Test Statistic	0.941
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	35.53	95% H-UCL	37.77
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	45.17
95% Adjusted-CLT UCL	37.03	97.5% Chebyshev (MVUE) UCL	52.9
95% Modified-t UCL	35.85	99% Chebyshev (MVUE) UCL	68.07

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.902	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	9.496		
MLE of Mean	27.55		
MLE of Standard Deviation	16.18		
nu star	81.24		
Approximate Chi Square Value (.05)	61.47	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0312	95% CLT UCL	34.96
Adjusted Chi Square Value	59.2	95% Jackknife UCL	35.53
		95% Standard Bootstrap UCL	34.59
Anderson-Darling Test Statistic	0.637	95% Bootstrap-t UCL	43.77
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL	83.75
Kolmogorov-Smirnov Test Statistic	0.196	95% Percentile Bootstrap UCL	34.9
Kolmogorov-Smirnov 5% Critical Value	0.23	95% BCA Bootstrap UCL	37.07
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	47.18
		97.5% Chebyshev(Mean, Sd) UCL	55.67
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	72.35
95% Approximate Gamma UCL	36.41		
95% Adjusted Gamma UCL	37.82		

Potential UCL to Use		Use 95% Approximate Gamma UCL	36.41

Chromium

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.5	Minimum of Log Data	1.504
Maximum	28.65	Maximum of Log Data	3.355
Mean	13.68	Mean of log Data	2.501
Median	12.5	SD of log Data	0.506
SD	6.855		
Coefficient of Variation	0.501		
Skewness	1.076		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.892	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	16.92	95% H-UCL	18.39
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.05
95% Adjusted-CLT UCL	17.26	97.5% Chebyshev (MVUE) UCL	25.65
95% Modified-t UCL	17.01	99% Chebyshev (MVUE) UCL	32.72

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.597	**Data appear Normal at 5% Significance Level**
Theta Star	3.802	
MLE of Mean	13.68	
MLE of Standard Deviation	7.212	
nu star	100.7	
Approximate Chi Square Value (.05)	78.57	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 16.69
Adjusted Chi Square Value	75.98	95% Jackknife UCL 16.92
		95% Standard Bootstrap UCL 16.54
Anderson-Darling Test Statistic	0.327	95% Bootstrap-t UCL 18.08
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL 21.52
Kolmogorov-Smirnov Test Statistic	0.167	95% Percentile Bootstrap UCL 16.72
Kolmogorov-Smirnov 5% Critical Value	0.23	95% BCA Bootstrap UCL 17.39
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 21.66
		97.5% Chebyshev(Mean, Sd) UCL 25.12
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 31.91
95% Approximate Gamma UCL	17.54	
95% Adjusted Gamma UCL	18.13	

Potential UCL to Use	Use 95% Student's-t UCL 16.92

TABLE D-1e2
ProUCL Output for Surface Soil- Area E2
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Surface_E2-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	4190	Minimum of Log Data	8.34
Maximum	9430	Maximum of Log Data	9.152
Mean	7134	Mean of log Data	8.852
Median	7375	SD of log Data	0.223
SD	1430		
Coefficient of Variation	0.2		
Skewness	-0.669		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.952	Shapiro Wilk Test Statistic	0.893
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7963	95% H-UCL	8253
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9354
95% Adjusted-CLT UCL (Chen-1995)	7775	97.5% Chebyshev (MVUE) UCL	10309
95% Modified-t UCL (Johnson-1978)	7947	99% Chebyshev (MVUE) UCL	12185

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	17.06	**Data appear Normal at 5% Significance Level**
Theta Star	418.1	
MLE of Mean	7134	
MLE of Standard Deviation	1727	
nu star	341.2	
Approximate Chi Square Value (.05)	299.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 7878
Adjusted Chi Square Value	292.6	95% Jackknife UCL 7963
		95% Standard Bootstrap UCL 7859
Anderson-Darling Test Statistic	0.451	95% Bootstrap-t UCL 7878
Anderson-Darling 5% Critical Value	0.725	95% Hall's Bootstrap UCL 7844
Kolmogorov-Smirnov Test Statistic	0.217	95% Percentile Bootstrap UCL 7819
Kolmogorov-Smirnov 5% Critical Value	0.266	95% BCA Bootstrap UCL 7774
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 9105
		97.5% Chebyshev(Mean, Sd) UCL 9957
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 11632
95% Approximate Gamma UCL	8130	
95% Adjusted Gamma UCL	8319	

Potential UCL to Use	Use 95% Student's-t UCL 7963

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Antimony

General Statistics

Number of Valid Data	9	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	8
		Percent Non-Detects	88.89%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Antimony was not processed!

Arsenic

General Statistics

Number of Valid Data	10	Number of Detected Data	9
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	10.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	3.6	Maximum Detected	1.281
Mean of Detected	2.444	Mean of Detected	0.817
SD of Detected	0.955	SD of Detected	0.427
Minimum Non-Detect	0.87	Minimum Non-Detect	-0.139
Maximum Non-Detect	0.87	Maximum Non-Detect	-0.139

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.897	Shapiro Wilk Test Statistic	0.894
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.244	Mean	0.652
SD	1.102	SD	0.659
95% DL/2 (t) UCL	2.883	95% H-Stat (DL/2) UCL	4.099
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.236	Mean in Log Scale	0.715
SD	1.067	SD in Log Scale	0.517
95% MLE (t) UCL	2.855	Mean in Original Scale	2.281
95% MLE (Tiku) UCL	2.861	SD in Original Scale	1.038
		95% t UCL	2.883
		95% Percentile Bootstrap UCL	2.78
		95% BCA Bootstrap UCL	2.78

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	4.547	**Data appear Normal at 5% Significance Level**	
Theta Star	0.538		
nu star	81.85		
A-D Test Statistic	0.427	**Nonparametric Statistics**	
5% A-D Critical Value	0.722	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.722	Mean	2.32
5% K-S Critical Value	0.28	SD	0.933
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.313
		95% KM (t) UCL	2.893
Assuming Gamma Distribution		95% KM (z) UCL	2.834
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.887
Minimum	0.66	95% KM (bootstrap t) UCL	2.927
Maximum	3.6	95% KM (BCA) UCL	2.88
Mean	2.266	95% KM (Percentile Bootstrap) UCL	2.83
Median	2.15	95% KM (Chebyshev) UCL	3.683
SD	1.063	97.5% KM (Chebyshev) UCL	4.273
k star	3.004	99% KM (Chebyshev) UCL	5.432
Theta star	0.754		
Nu star	60.08	**Potential UCLs to Use**	
AppChi2	43.26	95% KM (t) UCL	2.893

95% Gamma Approximate UCL	3.147	95% KM (Percentile Bootstrap) UCL	2.83
95% Adjusted Gamma UCL	3.338		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.09	Minimum of Log Data	-2.408
Maximum	1.8	Maximum of Log Data	0.588
Mean	0.559	Mean of log Data	-0.93
Median	0.475	SD of log Data	0.923
SD	0.498		
Coefficient of Variation	0.891		
Skewness	1.885		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.806	Shapiro Wilk Test Statistic	0.939
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.848	95% H-UCL	1.496
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.332
95% Adjusted-CLT UCL (Chen-1995)	0.918	97.5% Chebyshev (MVUE) UCL	1.66
95% Modified-t UCL (Johnson-1978)	0.863	99% Chebyshev (MVUE) UCL	2.306

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.173	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.476	
MLE of Mean	0.559	
MLE of Standard Deviation	0.516	
nu star	23.47	
Approximate Chi Square Value (.05)	13.45	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 0.818
Adjusted Chi Square Value	12.15	95% Jackknife UCL 0.848
		95% Standard Bootstrap UCL 0.803
Anderson-Darling Test Statistic	0.338	95% Bootstrap-t UCL 1.03
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL 2.075
Kolmogorov-Smirnov Test Statistic	0.171	95% Percentile Bootstrap UCL 0.814
Kolmogorov-Smirnov 5% Critical Value	0.271	95% BCA Bootstrap UCL 0.923
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.245
		97.5% Chebyshev(Mean, Sd) UCL 1.542
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 2.125
95% Approximate Gamma UCL	0.976	
95% Adjusted Gamma UCL	1.08	

Potential UCL to Use	Use 95% Approximate Gamma UCL 0.976

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.081	Minimum of Log Data	-2.513
Maximum	1.5	Maximum of Log Data	0.405
Mean	0.567	Mean of log Data	-0.913
Median	0.53	SD of log Data	0.963
SD	0.441		
Coefficient of Variation	0.778		
Skewness	0.994		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.921	Shapiro Wilk Test Statistic	0.94
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.823	95% H-UCL	1.687
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.435
95% Adjusted-CLT UCL (Chen-1995)	0.844	97.5% Chebyshev (MVUE) UCL	1.796
95% Modified-t UCL (Johnson-1978)	0.83	99% Chebyshev (MVUE) UCL	2.505

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.181	**Data appear Normal at 5% Significance Level**
Theta Star	0.48	
MLE of Mean	0.567	
MLE of Standard Deviation	0.522	
nu star	23.62	
Approximate Chi Square Value (.05)	13.56	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 0.797
Adjusted Chi Square Value	12.25	95% Jackknife UCL 0.823
		95% Standard Bootstrap UCL 0.786
Anderson-Darling Test Statistic	0.217	95% Bootstrap-t UCL 0.892
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL 0.978
Kolmogorov-Smirnov Test Statistic	0.137	95% Percentile Bootstrap UCL 0.805
Kolmogorov-Smirnov 5% Critical Value	0.271	95% BCA Bootstrap UCL 0.808
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.176
		97.5% Chebyshev(Mean, Sd) UCL 1.439
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.956
95% Approximate Gamma UCL	0.988	
95% Adjusted Gamma UCL	1.093	

Potential UCL to Use	Use 95% Student's-t UCL 0.823

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.1	Minimum of Log Data	-2.303
Maximum	2.7	Maximum of Log Data	0.993
Mean	0.814	Mean of log Data	-0.616
Median	0.635	SD of log Data	1.016
SD	0.772		
Coefficient of Variation	0.948		
Skewness	1.822		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.807	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.261	95% H-UCL	2.62
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.086
95% Adjusted-CLT UCL (Chen-1995)	1.366	97.5% Chebyshev (MVUE) UCL	2.623
95% Modified-t UCL (Johnson-1978)	1.285	99% Chebyshev (MVUE) UCL	3.678

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.02	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.798	
MLE of Mean	0.814	
MLE of Standard Deviation	0.806	
nu star	20.41	
Approximate Chi Square Value (.05)	11.15	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 1.215
Adjusted Chi Square Value	9.983	95% Jackknife UCL 1.261
		95% Standard Bootstrap UCL 1.192
Anderson-Darling Test Statistic	0.327	95% Bootstrap-t UCL 1.601
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL 3.303
Kolmogorov-Smirnov Test Statistic	0.196	95% Percentile Bootstrap UCL 1.233
Kolmogorov-Smirnov 5% Critical Value	0.272	95% BCA Bootstrap UCL 1.35
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.878
		97.5% Chebyshev(Mean, Sd) UCL 2.338
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 3.242
95% Approximate Gamma UCL	1.49	
95% Adjusted Gamma UCL	1.664	

Potential UCL to Use	Use 95% Approximate Gamma UCL 1.49

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	10	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	4
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.036	Minimum Detected	-3.324
Maximum Detected	0.39	Maximum Detected	-0.942
Mean of Detected	0.138	Mean of Detected	-2.242
SD of Detected	0.126	SD of Detected	0.76
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.4	Maximum Non-Detect	-0.916

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.675	Shapiro Wilk Test Statistic	0.858
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.14	Mean	-2.148
SD	0.1	SD	0.63
95% DL/2 (t) UCL	0.198	95% H-Stat (DL/2) UCL	0.236
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.312
		SD in Log Scale	0.574
		Mean in Original Scale	0.119
		SD in Original Scale	0.0974
		95% t UCL	0.175
		95% Percentile Bootstrap UCL	0.178
		95% BCA Bootstrap UCL	0.209

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.138	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.121		
nu star	13.66		
A-D Test Statistic	0.75	**Nonparametric Statistics**	
5% A-D Critical Value	0.704	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.704	Mean	0.121
5% K-S Critical Value	0.336	SD	0.0982
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0365
		95% KM (t) UCL	0.188
Assuming Gamma Distribution		95% KM (z) UCL	0.181
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.187
Minimum	0.036	95% KM (bootstrap t) UCL	0.415
Maximum	0.39	95% KM (BCA) UCL	0.187
Mean	0.139	95% KM (Percentile Bootstrap) UCL	0.184
Median	0.124	95% KM (Chebyshev) UCL	0.281

TABLE D-1e2
ProUCL Output for Surface Soil- Area E2
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.0941	97.5% KM (Chebyshev) UCL	0.35
k star	2.396	99% KM (Chebyshev) UCL	0.485
Theta star	0.058		
Nu star	47.92	**Potential UCLs to Use**	
AppChi2	33.03	95% KM (t) UCL	0.188
95% Gamma Approximate UCL	0.201	95% KM (% Bootstrap) UCL	0.184
95% Adjusted Gamma UCL	0.215		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.8	Minimum of Log Data	2.282
Maximum	14.7	Maximum of Log Data	2.688
Mean	12.13	Mean of log Data	2.487
Median	12.3	SD of log Data	0.135
SD	1.634		
Coefficient of Variation	0.135		
Skewness	0.198		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.95	Shapiro Wilk Test Statistic	0.953
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13.08	95% H-UCL	13.18
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14.39
95% Adjusted-CLT UCL (Chen-1995)	13.01	97.5% Chebyshev (MVUE) UCL	15.37
95% Modified-t UCL (Johnson-1978)	13.08	99% Chebyshev (MVUE) UCL	17.29

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	42.92	**Data appear Normal at 5% Significance Level**
Theta Star	0.283	
MLE of Mean	12.13	
MLE of Standard Deviation	1.851	
nu star	858.5	
Approximate Chi Square Value (.05)	791.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 12.98
Adjusted Chi Square Value	780.3	95% Jackknife UCL 13.08
		95% Standard Bootstrap UCL 12.93
Anderson-Darling Test Statistic	0.252	95% Bootstrap-t UCL 13.14
Anderson-Darling 5% Critical Value	0.724	95% Hall's Bootstrap UCL 13.17
Kolmogorov-Smirnov Test Statistic	0.123	95% Percentile Bootstrap UCL 12.91
Kolmogorov-Smirnov 5% Critical Value	0.266	95% BCA Bootstrap UCL 12.96
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 14.38
		97.5% Chebyshev(Mean, Sd) UCL 15.36
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 17.27
95% Approximate Gamma UCL	13.16	
95% Adjusted Gamma UCL	13.35	

Potential UCL to Use	Use 95% Student's-t UCL 13.08

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.6	Minimum of Log Data	0.956
Maximum	6.3	Maximum of Log Data	1.841
Mean	4.5	Mean of log Data	1.467
Median	4.5	SD of log Data	0.294
SD	1.247		
Coefficient of Variation	0.277		
Skewness	-0.0451		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.965	Shapiro Wilk Test Statistic	0.956
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.223	95% H-UCL	5.489
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.343
95% Adjusted-CLT UCL (Chen-1995)	5.143	97.5% Chebyshev (MVUE) UCL	7.137
95% Modified-t UCL (Johnson-1978)	5.222	99% Chebyshev (MVUE) UCL	8.698

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	9.585	**Data appear Normal at 5% Significance Level**	
Theta Star	0.469		
MLE of Mean	4.5		
MLE of Standard Deviation	1.453		
nu star	191.7		
Approximate Chi Square Value (.05)	160.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0267	95% CLT UCL	5.149
Adjusted Chi Square Value	155.7	95% Jackknife UCL	5.223
		95% Standard Bootstrap UCL	5.108
Anderson-Darling Test Statistic	0.207	95% Bootstrap-t UCL	5.214
Anderson-Darling 5% Critical Value	0.725	95% Hall's Bootstrap UCL	5.134
Kolmogorov-Smirnov Test Statistic	0.14	95% Percentile Bootstrap UCL	5.12
Kolmogorov-Smirnov 5% Critical Value	0.266	95% BCA Bootstrap UCL	5.08
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.219
		97.5% Chebyshev(Mean, Sd) UCL	6.963
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.424
95% Approximate Gamma UCL	5.369		
95% Adjusted Gamma UCL	5.539		

Potential UCL to Use		Use 95% Student's-t UCL	5.223

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	10	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	2
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.02	Minimum Detected	-3.912
Maximum Detected	0.24	Maximum Detected	-1.427
Mean of Detected	0.128	Mean of Detected	-2.342
SD of Detected	0.0875	SD of Detected	0.901
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	0.4	Maximum Non-Detect	-0.916

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.904	Shapiro Wilk Test Statistic	0.91
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.142	Mean	-2.201
SD	0.0822	SD	0.848
95% DL/2 (t) UCL	0.189	95% H-Stat (DL/2) UCL	0.35
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.342
		SD in Log Scale	0.794
		Mean in Original Scale	0.122
		SD in Original Scale	0.0784
		95% t UCL	0.167
		95% Percentile Bootstrap UCL	0.164
		95% BCA Bootstrap UCL	0.163

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.258	**Data appear Normal at 5% Significance Level**	
Theta Star	0.102		
nu star	20.12		
A-D Test Statistic	0.323	**Nonparametric Statistics**	
5% A-D Critical Value	0.725	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.725	Mean	0.128
5% K-S Critical Value	0.298	SD	0.0819
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0309
		95% KM (t) UCL	0.185
Assuming Gamma Distribution		95% KM (z) UCL	0.179
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.186
Minimum	0.02	95% KM (bootstrap t) UCL	0.194
Maximum	0.24	95% KM (BCA) UCL	0.178
Mean	0.129	95% KM (Percentile Bootstrap) UCL	0.177
Median	0.131	95% KM (Chebyshev) UCL	0.263

SD	0.0772	97.5% KM (Chebyshev) UCL	0.322
k star	1.687	99% KM (Chebyshev) UCL	0.436
Theta star	0.0765		
Nu star	33.73	**Potential UCLs to Use**	
AppChi2	21.45	95% KM (t) UCL	0.185
95% Gamma Approximate UCL	0.203	95% KM (Percentile Bootstrap) UCL	0.177
95% Adjusted Gamma UCL	0.22		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	10	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	9
		Percent Non-Detects	90.00%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Di-n-octyl phthalate was not processed!

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.078	Minimum of Log Data	-2.551
Maximum	1.6	Maximum of Log Data	0.47
Mean	0.416	Mean of log Data	-1.338
Median	0.255	SD of log Data	0.998
SD	0.464		
Coefficient of Variation	1.115		
Skewness	2.148		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.739	Shapiro Wilk Test Statistic	0.94
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.685	95% H-UCL	1.21
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.987
95% Adjusted-CLT UCL (Chen-1995)	0.764	97.5% Chebyshev (MVUE) UCL	1.239
95% Modified-t UCL (Johnson-1978)	0.702	99% Chebyshev (MVUE) UCL	1.734

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.923	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.451	
MLE of Mean	0.416	
MLE of Standard Deviation	0.433	
nu star	18.46	
Approximate Chi Square Value (.05)	9.722	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 0.658
Adjusted Chi Square Value	8.641	95% Jackknife UCL 0.685
		95% Standard Bootstrap UCL 0.642
Anderson-Darling Test Statistic	0.403	95% Bootstrap-t UCL 1.016
Anderson-Darling 5% Critical Value	0.744	95% Hall's Bootstrap UCL 1.674
Kolmogorov-Smirnov Test Statistic	0.206	95% Percentile Bootstrap UCL 0.674
Kolmogorov-Smirnov 5% Critical Value	0.273	95% BCA Bootstrap UCL 0.766
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.056
		97.5% Chebyshev(Mean, Sd) UCL 1.333
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.876
95% Approximate Gamma UCL	0.79	
95% Adjusted Gamma UCL	0.889	

Potential UCL to Use	Use 95% Approximate Gamma UCL 0.79

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	7570	Minimum of Log Data	8.932
Maximum	14800	Maximum of Log Data	9.602
Mean	11482	Mean of log Data	9.33
Median	10700	SD of log Data	0.206
SD	2299		
Coefficient of Variation	0.2		
Skewness	0.0503		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.934	Shapiro Wilk Test Statistic	0.931
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12815	95% H-UCL	13105
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14762
95% Adjusted-CLT UCL (Chen-1995)	12690	97.5% Chebyshev (MVUE) UCL	16179
95% Modified-t UCL (Johnson-1978)	12817	99% Chebyshev (MVUE) UCL	18962

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	18.91	**Data appear Normal at 5% Significance Level**	
Theta Star	607.3		
MLE of Mean	11482		
MLE of Standard Deviation	2641		
nu star	378.1		
Approximate Chi Square Value (.05)	334.1	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0267	95% CLT UCL	12678
Adjusted Chi Square Value	326.9	95% Jackknife UCL	12815
		95% Standard Bootstrap UCL	12636
Anderson-Darling Test Statistic	0.385	95% Bootstrap-t UCL	12928
Anderson-Darling 5% Critical Value	0.725	95% Hall's Bootstrap UCL	12660
Kolmogorov-Smirnov Test Statistic	0.217	95% Percentile Bootstrap UCL	12577
Kolmogorov-Smirnov 5% Critical Value	0.266	95% BCA Bootstrap UCL	12635
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	14651
		97.5% Chebyshev(Mean, Sd) UCL	16022
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	18716
95% Approximate Gamma UCL	12997		
95% Adjusted Gamma UCL	13283		

Potential UCL to Use	Use 95% Student's-t UCL	12815

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	115	Minimum of Log Data	4.745
Maximum	227	Maximum of Log Data	5.425
Mean	176	Mean of log Data	5.15
Median	177.5	SD of log Data	0.218
SD	36.48		
Coefficient of Variation	0.207		
Skewness	-0.213		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.96	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	197.1	95% H-UCL	202.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	229.3
95% Adjusted-CLT UCL (Chen-1995)	194.1	97.5% Chebyshev (MVUE) UCL	252.3
95% Modified-t UCL (Johnson-1978)	197	99% Chebyshev (MVUE) UCL	297.6

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	17.12	**Data appear Normal at 5% Significance Level**
Theta Star	10.28	
MLE of Mean	176	
MLE of Standard Deviation	42.53	
nu star	342.5	
Approximate Chi Square Value (.05)	300.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 195
Adjusted Chi Square Value	293.7	95% Jackknife UCL 197.1
		95% Standard Bootstrap UCL 193.6
Anderson-Darling Test Statistic	0.269	95% Bootstrap-t UCL 195.1
Anderson-Darling 5% Critical Value	0.725	95% Hall's Bootstrap UCL 195.3
Kolmogorov-Smirnov Test Statistic	0.182	95% Percentile Bootstrap UCL 193.6
Kolmogorov-Smirnov 5% Critical Value	0.266	95% BCA Bootstrap UCL 193.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 226.3
		97.5% Chebyshev(Mean, Sd) UCL 248
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 290.8
95% Approximate Gamma UCL	200.5	
95% Adjusted Gamma UCL	205.2	

Potential UCL to Use	Use 95% Student's-t UCL 197.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	15	Minimum of Log Data	2.708
Maximum	38.1	Maximum of Log Data	3.64
Mean	24.87	Mean of log Data	3.16
Median	22.2	SD of log Data	0.347
SD	8.508		
Coefficient of Variation	0.342		
Skewness	0.331		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.901	Shapiro Wilk Test Statistic	0.909
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	29.8	95% H-UCL	31.65
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	36.89
95% Adjusted-CLT UCL (Chen-1995)	29.6	97.5% Chebyshev (MVUE) UCL	42.08
95% Modified-t UCL (Johnson-1978)	29.85	99% Chebyshev (MVUE) UCL	52.29

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	6.702	**Data appear Normal at 5% Significance Level**
Theta Star	3.711	
MLE of Mean	24.87	
MLE of Standard Deviation	9.607	
nu star	134	
Approximate Chi Square Value (.05)	108.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 29.3
Adjusted Chi Square Value	104.3	95% Jackknife UCL 29.8
		95% Standard Bootstrap UCL 28.99
Anderson-Darling Test Statistic	0.447	95% Bootstrap-t UCL 30
Anderson-Darling 5% Critical Value	0.726	95% Hall's Bootstrap UCL 28.94
Kolmogorov-Smirnov Test Statistic	0.203	95% Percentile Bootstrap UCL 28.99
Kolmogorov-Smirnov 5% Critical Value	0.267	95% BCA Bootstrap UCL 29.42
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 36.6
		97.5% Chebyshev(Mean, Sd) UCL 41.67
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 51.64
95% Approximate Gamma UCL	30.78	
95% Adjusted Gamma UCL	31.97	

Potential UCL to Use	Use 95% Student's-t UCL 29.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1e3
ProUCL Output for Surface Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Surface_E3-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	4280	Minimum of Log Data	8.362
Maximum	12000	Maximum of Log Data	9.393
Mean	9273	Mean of log Data	9.103
Median	9660	SD of log Data	0.282
SD	2177		
Coefficient of Variation	0.235		
Skewness	-0.973		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.919	Shapiro Wilk Test Statistic	0.83
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	10402	95% H-UCL	10992
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12643
95% Adjusted-CLT UCL (Chen-1995)	10118	97.5% Chebyshev (MVUE) UCL	14083
95% Modified-t UCL (Johnson-1978)	10372	99% Chebyshev (MVUE) UCL	16912

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	11.94	**Data appear Normal at 5% Significance Level**
Theta Star	776.7	
MLE of Mean	9273	
MLE of Standard Deviation	2684	
nu star	286.5	
Approximate Chi Square Value (.05)	248.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 10307
Adjusted Chi Square Value	242.9	95% Jackknife UCL 10402
		95% Standard Bootstrap UCL 10254
Anderson-Darling Test Statistic	0.567	95% Bootstrap-t UCL 10235
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 10177
Kolmogorov-Smirnov Test Statistic	0.16	95% Percentile Bootstrap UCL 10183
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 10144
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 12012
		97.5% Chebyshev(Mean, Sd) UCL 13198
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 15526
95% Approximate Gamma UCL	10700	
95% Adjusted Gamma UCL	10939	

Potential UCL to Use	Use 95% Student's-t UCL 10402

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.6	Minimum of Log Data	0.47
Maximum	6.2	Maximum of Log Data	1.825
Mean	3.583	Mean of log Data	1.179
Median	3.45	SD of log Data	0.466
SD	1.603		
Coefficient of Variation	0.447		
Skewness	0.363		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.897	Shapiro Wilk Test Statistic	0.912
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.414	95% H-UCL	4.872
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.741
95% Adjusted-CLT UCL (Chen-1995)	4.396	97.5% Chebyshev (MVUE) UCL	6.672
95% Modified-t UCL (Johnson-1978)	4.422	99% Chebyshev (MVUE) UCL	8.5

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.049	**Data appear Normal at 5% Significance Level**
Theta Star	0.885	
MLE of Mean	3.583	
MLE of Standard Deviation	1.781	
nu star	97.18	
Approximate Chi Square Value (.05)	75.44	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 4.344
Adjusted Chi Square Value	72.53	95% Jackknife UCL 4.414
		95% Standard Bootstrap UCL 4.321
Anderson-Darling Test Statistic	0.563	95% Bootstrap-t UCL 4.508
Anderson-Darling 5% Critical Value	0.732	95% Hall's Bootstrap UCL 4.335
Kolmogorov-Smirnov Test Statistic	0.218	95% Percentile Bootstrap UCL 4.317
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 4.325
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 5.6
		97.5% Chebyshev(Mean, Sd) UCL 6.473
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.187
95% Approximate Gamma UCL	4.616	
95% Adjusted Gamma UCL	4.802	

Potential UCL to Use	Use 95% Student's-t UCL 4.414

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.061	Minimum Detected	-2.797
Maximum Detected	3.4	Maximum Detected	1.224
Mean of Detected	0.727	Mean of Detected	-0.903
SD of Detected	0.944	SD of Detected	1.151
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.661	Shapiro Wilk Test Statistic	0.977
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.681	Mean	-0.969
SD	0.914	SD	1.121
95% DL/2 (t) UCL	1.155	95% H-Stat (DL/2) UCL	2.055
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.207	Mean in Log Scale	-0.982
SD	1.347	SD in Log Scale	1.131
95% MLE (t) UCL	0.905	Mean in Original Scale	0.679
95% MLE (Tiku) UCL	1.073	SD in Original Scale	0.915
		95% t UCL	1.154
		95% Percentile Bootstrap UCL	1.147
		95% BCA Bootstrap UCL	1.287

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.781	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.931		
nu star	17.17		
A-D Test Statistic	0.334	**Nonparametric Statistics**	
5% A-D Critical Value	0.752	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.752	Mean	0.681
5% K-S Critical Value	0.262	SD	0.876
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.265
		95% KM (t) UCL	1.158
Assuming Gamma Distribution		95% KM (z) UCL	1.118
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.156
Minimum	0.061	95% KM (bootstrap t) UCL	1.807
Maximum	3.4	95% KM (BCA) UCL	1.184
Mean	0.677	95% KM (Percentile Bootstrap) UCL	1.164
Median	0.44	95% KM (Chebyshev) UCL	1.837
SD	0.916	97.5% KM (Chebyshev) UCL	2.338
k star	0.776	99% KM (Chebyshev) UCL	3.321
Theta star	0.873		
Nu star	18.62	**Potential UCLs to Use**	
AppChi2	9.838	95% KM (Chebyshev) UCL	1.837
95% Gamma Approximate UCL	1.282		
95% Adjusted Gamma UCL	1.42		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.046	Minimum Detected	-3.079
Maximum Detected	2.6	Maximum Detected	0.956
Mean of Detected	0.554	Mean of Detected	-1.19
SD of Detected	0.718	SD of Detected	1.182
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.651	Shapiro Wilk Test Statistic	0.953
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.523	Mean	-1.231
SD	0.693	SD	1.136
95% DL/2 (t) UCL	0.882	95% H-Stat (DL/2) UCL	1.645
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.336	Mean in Log Scale	-1.288
SD	0.872	SD in Log Scale	1.177
95% MLE (t) UCL	0.788	Mean in Original Scale	0.515
95% MLE (Tiku) UCL	0.853	SD in Original Scale	0.698
		95% t UCL	0.877
		95% Percentile Bootstrap UCL	0.872
		95% BCA Bootstrap UCL	1.031

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.765	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.724		
nu star	16.83		
A-D Test Statistic	0.41	**Nonparametric Statistics**	
5% A-D Critical Value	0.753	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.753	Mean	0.515
5% K-S Critical Value	0.263	SD	0.668
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.202
		95% KM (t) UCL	0.878
Assuming Gamma Distribution		95% KM (z) UCL	0.848
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.877
Minimum	0.0387	95% KM (bootstrap t) UCL	1.338
Maximum	2.6	95% KM (BCA) UCL	0.917
Mean	0.511	95% KM (Percentile Bootstrap) UCL	0.861
Median	0.395	95% KM (Chebyshev) UCL	1.397
SD	0.701	97.5% KM (Chebyshev) UCL	1.779
k star	0.696	99% KM (Chebyshev) UCL	2.528
Theta star	0.734		
Nu star	16.7	**Potential UCLs to Use**	
AppChi2	8.456	95% KM (Chebyshev) UCL	1.397
95% Gamma Approximate UCL	1.008		
95% Adjusted Gamma UCL	1.125		

Note: DL/2 is not a recommended method.

**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.**

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.066	Minimum Detected	-2.718
Maximum Detected	2.8	Maximum Detected	1.03
Mean of Detected	0.731	Mean of Detected	-0.793
SD of Detected	0.769	SD of Detected	1.101
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.764	Shapiro Wilk Test Statistic	0.967
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.686	Mean	-0.868
SD	0.75	SD	1.081
95% DL/2 (t) UCL	1.075	95% H-Stat (DL/2) UCL	2.043
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.457	Mean in Log Scale	-0.885
SD	0.981	SD in Log Scale	1.097
95% MLE (t) UCL	0.965	Mean in Original Scale	0.683
95% MLE (Tiku) UCL	1.036	SD in Original Scale	0.752
		95% t UCL	1.073
		95% Percentile Bootstrap UCL	1.064
		95% BCA Bootstrap UCL	1.184

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.919	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.796		
nu star	20.21		
A-D Test Statistic	0.214	**Nonparametric Statistics**	
5% A-D Critical Value	0.748	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.748	Mean	0.684
5% K-S Critical Value	0.261	SD	0.72
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.218
		95% KM (t) UCL	1.076
Assuming Gamma Distribution		95% KM (z) UCL	1.043
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.075
Minimum	0.066	95% KM (bootstrap t) UCL	1.393
Maximum	2.8	95% KM (BCA) UCL	1.058
Mean	0.682	95% KM (Percentile Bootstrap) UCL	1.053
Median	0.515	95% KM (Chebyshev) UCL	1.635
SD	0.753	97.5% KM (Chebyshev) UCL	2.046
k star	0.891	99% KM (Chebyshev) UCL	2.855
Theta star	0.765		
Nu star	21.39	**Potential UCLs to Use**	
AppChi2	11.88	95% KM (Chebyshev) UCL	1.635
95% Gamma Approximate UCL	1.227		
95% Adjusted Gamma UCL	1.348		

Note: DL/2 is not a recommended method.

**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.**

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.048	Minimum Detected	-3.037
Maximum Detected	1.9	Maximum Detected	0.642
Mean of Detected	0.485	Mean of Detected	-1.225
SD of Detected	0.526	SD of Detected	1.106
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.747	Shapiro Wilk Test Statistic	0.958
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.46	Mean	-1.263
SD	0.509	SD	1.063
95% DL/2 (t) UCL	0.724	95% H-Stat (DL/2) UCL	1.313
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.166	Mean in Log Scale	-1.287
SD	0.789	SD in Log Scale	1.076
95% MLE (t) UCL	0.576	Mean in Original Scale	0.456
95% MLE (Tiku) UCL	0.733	SD in Original Scale	0.511
		95% t UCL	0.721
		95% Percentile Bootstrap UCL	0.703
		95% BCA Bootstrap UCL	0.824

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.887	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.546		
nu star	19.52		
A-D Test Statistic	0.31	**Nonparametric Statistics**	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	0.458
5% K-S Critical Value	0.262	SD	0.489
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.148
		95% KM (t) UCL	0.724
Assuming Gamma Distribution		95% KM (z) UCL	0.702
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.723
Minimum	0.048	95% KM (bootstrap t) UCL	0.969
Maximum	1.9	95% KM (BCA) UCL	0.71
Mean	0.461	95% KM (Percentile Bootstrap) UCL	0.723
Median	0.25	95% KM (Chebyshev) UCL	1.104
SD	0.508	97.5% KM (Chebyshev) UCL	1.384
k star	0.939	99% KM (Chebyshev) UCL	1.933
Theta star	0.491		
Nu star	22.54	**Potential UCLs to Use**	
AppChi2	12.74	95% KM (Chebyshev) UCL	1.104
95% Gamma Approximate UCL	0.816		
95% Adjusted Gamma UCL	0.894		

Note: DL/2 is not a recommended method.

**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.**

Carbazole

General Statistics

Number of Valid Data	12	Number of Detected Data	7
Number of Distinct Detected Data	6	Number of Non-Detect Data	5
		Percent Non-Detects	41.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.077	Minimum Detected	-2.564
Maximum Detected	1.1	Maximum Detected	0.0953
Mean of Detected	0.326	Mean of Detected	-1.583
SD of Detected	0.372	SD of Detected	0.989
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	83.33%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.736	Shapiro Wilk Test Statistic	0.901
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.269	Mean	-1.616
SD	0.284	SD	0.732
95% DL/2 (t) UCL	0.416	95% H-Stat (DL/2) UCL	0.448
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.764
		SD in Log Scale	0.764
		Mean in Original Scale	0.245
		SD in Original Scale	0.292
		95% t UCL	0.397
		95% Percentile Bootstrap UCL	0.4
		95% BCA Bootstrap UCL	0.457

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.795	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.41		
nu star	11.13		
A-D Test Statistic	0.524	**Nonparametric Statistics**	
5% A-D Critical Value	0.725	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.725	Mean	0.247
5% K-S Critical Value	0.318	SD	0.283
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0901
		95% KM (t) UCL	0.408
Assuming Gamma Distribution		95% KM (z) UCL	0.395
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.405
Minimum	0.077	95% KM (bootstrap t) UCL	0.621
Maximum	1.1	95% KM (BCA) UCL	0.407
Mean	0.325	95% KM (Percentile Bootstrap) UCL	0.401
Median	0.323	95% KM (Chebyshev) UCL	0.639
SD	0.275	97.5% KM (Chebyshev) UCL	0.809
k star	1.563	99% KM (Chebyshev) UCL	1.143
Theta star	0.208		
Nu star	37.52	**Potential UCLs to Use**	
AppChi2	24.5	95% KM (BCA) UCL	0.407
95% Gamma Approximate UCL	0.497		
95% Adjusted Gamma UCL	0.532		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	11.7	Minimum of Log Data	2.46
Maximum	23	Maximum of Log Data	3.135
Mean	18.71	Mean of log Data	2.914
Median	19.28	SD of log Data	0.186
SD	3.144		
Coefficient of Variation	0.168		
Skewness	-0.921		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.944	Shapiro Wilk Test Statistic	0.893
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	20.34	95% H-UCL	20.79
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	23.13
95% Adjusted-CLT UCL (Chen-1995)	19.95	97.5% Chebyshev (MVUE) UCL	25.03
95% Modified-t UCL (Johnson-1978)	20.3	99% Chebyshev (MVUE) UCL	28.76

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	25.62	**Data appear Normal at 5% Significance Level**
Theta Star	0.73	
MLE of Mean	18.71	
MLE of Standard Deviation	3.697	
nu star	614.9	
Approximate Chi Square Value (.05)	558.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 20.21
Adjusted Chi Square Value	550.2	95% Jackknife UCL 20.34
		95% Standard Bootstrap UCL 20.16
Anderson-Darling Test Statistic	0.408	95% Bootstrap-t UCL 20.1
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 19.99
Kolmogorov-Smirnov Test Statistic	0.16	95% Percentile Bootstrap UCL 20.08
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 20
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 22.67
		97.5% Chebyshev(Mean, Sd) UCL 24.38
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 27.74
95% Approximate Gamma UCL	20.61	
95% Adjusted Gamma UCL	20.91	

Potential UCL to Use	Use 95% Student's-t UCL 20.34

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.7	Minimum of Log Data	1.548
Maximum	8.3	Maximum of Log Data	2.116
Mean	6.442	Mean of log Data	1.853
Median	6.1	SD of log Data	0.15
SD	0.962		
Coefficient of Variation	0.149		
Skewness	0.302		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.928
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.941	95% H-UCL	6.997
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.661
95% Adjusted-CLT UCL (Chen-1995)	6.925	97.5% Chebyshev (MVUE) UCL	8.189
95% Modified-t UCL (Johnson-1978)	6.945	99% Chebyshev (MVUE) UCL	9.225

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	36.73	**Data appear Normal at 5% Significance Level**
Theta Star	0.175	
MLE of Mean	6.442	
MLE of Standard Deviation	1.063	
nu star	881.5	
Approximate Chi Square Value (.05)	813.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 6.899
Adjusted Chi Square Value	803.7	95% Jackknife UCL 6.941
		95% Standard Bootstrap UCL 6.885
Anderson-Darling Test Statistic	0.519	95% Bootstrap-t UCL 7.014
Anderson-Darling 5% Critical Value	0.73	95% Hall's Bootstrap UCL 6.919
Kolmogorov-Smirnov Test Statistic	0.213	95% Percentile Bootstrap UCL 6.9
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 6.875
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.653
		97.5% Chebyshev(Mean, Sd) UCL 8.177
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 9.206
95% Approximate Gamma UCL	6.979	
95% Adjusted Gamma UCL	7.066	

Potential UCL to Use	Use 95% Student's-t UCL 6.941

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	12	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	4
		Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.039	Minimum Detected	-3.244
Maximum Detected	0.66	Maximum Detected	-0.416
Mean of Detected	0.188	Mean of Detected	-2.016
SD of Detected	0.199	SD of Detected	0.848
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.67%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.688	Shapiro Wilk Test Statistic	0.96
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.189	Mean	-1.898
SD	0.159	SD	0.7
95% DL/2 (t) UCL	0.271	95% H-Stat (DL/2) UCL	0.318
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.078
		SD in Log Scale	0.683
		Mean in Original Scale	0.163
		SD in Original Scale	0.163
		95% t UCL	0.247
		95% Percentile Bootstrap UCL	0.249
		95% BCA Bootstrap UCL	0.288

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.075	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.175		
nu star	17.2		
A-D Test Statistic	0.452	**Nonparametric Statistics**	
5% A-D Critical Value	0.728	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.728	Mean	0.166
5% K-S Critical Value	0.299	SD	0.158
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0505
		95% KM (t) UCL	0.257
Assuming Gamma Distribution		95% KM (z) UCL	0.249
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.255
Minimum	0.039	95% KM (bootstrap t) UCL	0.368
Maximum	0.66	95% KM (BCA) UCL	0.264
Mean	0.188	95% KM (Percentile Bootstrap) UCL	0.257
Median	0.189	95% KM (Chebyshev) UCL	0.386
SD	0.159	97.5% KM (Chebyshev) UCL	0.481
k star	1.791	99% KM (Chebyshev) UCL	0.668
Theta star	0.105		
Nu star	42.98	**Potential UCLs to Use**	
AppChi2	28.95	95% KM (Percentile Bootstrap) UCL	0.257
95% Gamma Approximate UCL	0.28		
95% Adjusted Gamma UCL	0.298		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	12	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	10
		Percent Non-Detects	83.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.074	Minimum Detected	-2.604
Maximum Detected	0.23	Maximum Detected	-1.47
Mean of Detected	0.152	Mean of Detected	-2.037
SD of Detected	0.11	SD of Detected	0.802
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.77	Maximum Non-Detect	-0.261

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.201	Mean	-1.661
SD	0.0689	SD	0.362
95% DL/2 (t) UCL	0.236	95% H-Stat (DL/2) UCL	0.252
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.152
5% K-S Critical Value	N/A	SD	0.078
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.078
		95% KM (t) UCL	0.292

TABLE D-1e3
ProUCL Output for Surface Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Assuming Gamma Distribution		95% KM (z) UCL	0.28
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.342
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	0.23
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	0.492
SD	N/A	97.5% KM (Chebyshev) UCL	0.639
k star	N/A	99% KM (Chebyshev) UCL	0.928
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	0.292
95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	N/A
95% Adjusted Gamma UCL	N/A		

Warning: Recommended UCL exceeds the maximum observation

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.045	Minimum Detected	-3.101
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	0.417	Mean of Detected	-1.365
SD of Detected	0.466	SD of Detected	1.081
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.724	Shapiro Wilk Test Statistic	0.955
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.398	Mean	-1.392
SD	0.45	SD	1.035
95% DL/2 (t) UCL	0.631	95% H-Stat (DL/2) UCL	1.075
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.412
		SD in Log Scale	1.043
		Mean in Original Scale	0.394
		SD in Original Scale	0.452
		95% t UCL	0.629
		95% Percentile Bootstrap UCL	0.624
		95% BCA Bootstrap UCL	0.719

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.902	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.462		
nu star	19.85		
A-D Test Statistic	0.319	**Nonparametric Statistics**	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	0.398
5% K-S Critical Value	0.262	SD	0.432
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.131
		95% KM (t) UCL	0.633
Assuming Gamma Distribution		95% KM (z) UCL	0.614
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.633
Minimum	0.045	95% KM (bootstrap t) UCL	0.857
Maximum	1.7	95% KM (BCA) UCL	0.618
Mean	0.401	95% KM (Percentile Bootstrap) UCL	0.622
Median	0.3	95% KM (Chebyshev) UCL	0.97
SD	0.448	97.5% KM (Chebyshev) UCL	1.217
k star	0.971	99% KM (Chebyshev) UCL	1.703
Theta star	0.413		
Nu star	23.31	**Potential UCLs to Use**	
AppChi2	13.33	95% KM (Chebyshev) UCL	0.97
95% Gamma Approximate UCL	0.702		
95% Adjusted Gamma UCL	0.767		

Note: DL/2 is not a recommended method.

**Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.**

Iron

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	7580	Minimum of Log Data	8.933
Maximum	16100	Maximum of Log Data	9.687
Mean	13936	Mean of log Data	9.524
Median	13925	SD of log Data	0.21
SD	2439		
Coefficient of Variation	0.175		
Skewness	-1.649		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.809	Shapiro Wilk Test Statistic	0.73
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15201	95% H-UCL	15733
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17674
95% Adjusted-CLT UCL (Chen-1995)	14736	97.5% Chebyshev (MVUE) UCL	19277
95% Modified-t UCL (Johnson-1978)	15145	99% Chebyshev (MVUE) UCL	22427

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	21.27	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	655.2	
MLE of Mean	13936	
MLE of Standard Deviation	3022	
nu star	510.5	
Approximate Chi Square Value (.05)	459.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 15094
Adjusted Chi Square Value	451.6	95% Jackknife UCL 15201
		95% Standard Bootstrap UCL 15049
Anderson-Darling Test Statistic	0.984	95% Bootstrap-t UCL 14933
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 14853
Kolmogorov-Smirnov Test Statistic	0.209	95% Percentile Bootstrap UCL 14929
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 14800
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 17005
		97.5% Chebyshev(Mean, Sd) UCL 18334
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20943
95% Approximate Gamma UCL	15496	
95% Adjusted Gamma UCL	15751	

Potential UCL to Use	Use 95% Approximate Gamma UCL 15496

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	113	Minimum of Log Data	4.727
Maximum	366	Maximum of Log Data	5.903
Mean	280.4	Mean of log Data	5.6
Median	292	SD of log Data	0.31
SD	67.45		
Coefficient of Variation	0.241		
Skewness	-1.334		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.879	Shapiro Wilk Test Statistic	0.755
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	315.4	95% H-UCL	339.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	393.7
95% Adjusted-CLT UCL (Chen-1995)	304.4	97.5% Chebyshev (MVUE) UCL	441.9
95% Modified-t UCL (Johnson-1978)	314.1	99% Chebyshev (MVUE) UCL	536.5

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	10.39	**Data appear Normal at 5% Significance Level**
Theta Star	26.98	
MLE of Mean	280.4	
MLE of Standard Deviation	86.98	
nu star	249.4	
Approximate Chi Square Value (.05)	213.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 312.4
Adjusted Chi Square Value	208.8	95% Jackknife UCL 315.4
		95% Standard Bootstrap UCL 310.5
Anderson-Darling Test Statistic	0.875	95% Bootstrap-t UCL 307.6
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 307.5
Kolmogorov-Smirnov Test Statistic	0.214	95% Percentile Bootstrap UCL 310
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 308
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 365.3
		97.5% Chebyshev(Mean, Sd) UCL 402
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 474.1
95% Approximate Gamma UCL	327.1	
95% Adjusted Gamma UCL	334.9	

Potential UCL to Use	Use 95% Student's-t UCL 315.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	12	Number of Detected Data	4
Number of Distinct Detected Data	3	Number of Non-Detect Data	8
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.1	Minimum Detected	0.0953
Maximum Detected	2.4	Maximum Detected	0.875
Mean of Detected	1.525	Mean of Detected	0.374
SD of Detected	0.591	SD of Detected	0.344
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	0.97	Maximum Non-Detect	-0.0305

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	66.67%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.762	Shapiro Wilk Test Statistic	0.812
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.689	Mean	-0.844
SD	0.699	SD	1.043
95% DL/2 (t) UCL	1.052	95% H-Stat (DL/2) UCL	1.898
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.571	Mean in Log Scale	-0.444
SD	0.889	SD in Log Scale	0.64
95% MLE (t) UCL	1.032	Mean in Original Scale	0.795
95% MLE (Tiku) UCL	1.315	SD in Original Scale	0.623
		95% t UCL	1.118
		95% Percentile Bootstrap UCL	1.09
		95% BCA Bootstrap UCL	1.186

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.805	**Data appear Normal at 5% Significance Level**	
Theta Star	0.544		
nu star	22.44		
A-D Test Statistic	0.61	**Nonparametric Statistics**	
5% A-D Critical Value	0.657	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.657	Mean	1.242
5% K-S Critical Value	0.395	SD	0.357
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.119
		95% KM (t) UCL	1.455
Assuming Gamma Distribution		95% KM (z) UCL	1.437
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.434
Minimum	1.1	95% KM (bootstrap t) UCL	1.761
Maximum	2.4	95% KM (BCA) UCL	N/A
Mean	1.527	95% KM (Percentile Bootstrap) UCL	1.575

TABLE D-1e3
ProUCL Output for Surface Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Median	1.531	95% KM (Chebyshev) UCL	1.76
SD	0.313	97.5% KM (Chebyshev) UCL	1.985
k star	22.72	99% KM (Chebyshev) UCL	2.426
Theta star	0.0672		
Nu star	545.2	**Potential UCLs to Use**	
AppChi2	492.1	95% KM (t) UCL	1.455
95% Gamma Approximate UCL	1.692	95% KM (Percentile Bootstrap) UCL	1.575
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	12	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	10
		Percent Non-Detects	83.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	1.6	Maximum Detected	0.47
Mean of Detected	1.4	Mean of Detected	0.326
SD of Detected	0.283	SD of Detected	0.203
Minimum Non-Detect	1.2	Minimum Non-Detect	0.182
Maximum Non-Detect	1.3	Maximum Non-Detect	0.262

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.67%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.771	Mean	-0.311
SD	0.306	SD	0.305
95% DL/2 (t) UCL	0.93	95% H-Stat (DL/2) UCL	0.916
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.233
5% K-S Critical Value	N/A	SD	0.111
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0451
		95% KM (t) UCL	1.314

TABLE D-1e3
ProUCL Output for Surface Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Assuming Gamma Distribution		95% KM (z) UCL	1.308
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	N/A
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	1.43
SD	N/A	97.5% KM (Chebyshev) UCL	1.515
k star	N/A	99% KM (Chebyshev) UCL	1.682
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.314
95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	N/A
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	19.8	Minimum of Log Data	2.986
Maximum	51.6	Maximum of Log Data	3.944
Mean	34.24	Mean of log Data	3.495
Median	33.1	SD of log Data	0.29
SD	9.981		
Coefficient of Variation	0.292		
Skewness	0.554		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.939	Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	39.41	95% H-UCL	40.64
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	46.85
95% Adjusted-CLT UCL (Chen-1995)	39.47	97.5% Chebyshev (MVUE) UCL	52.31
95% Modified-t UCL (Johnson-1978)	39.49	99% Chebyshev (MVUE) UCL	63.03

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	9.91	**Data appear Normal at 5% Significance Level**
Theta Star	3.455	
MLE of Mean	34.24	
MLE of Standard Deviation	10.88	
nu star	237.8	
Approximate Chi Square Value (.05)	203.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 38.98
Adjusted Chi Square Value	198.2	95% Jackknife UCL 39.41
		95% Standard Bootstrap UCL 38.79
Anderson-Darling Test Statistic	0.249	95% Bootstrap-t UCL 39.87
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 39.95
Kolmogorov-Smirnov Test Statistic	0.154	95% Percentile Bootstrap UCL 39.08
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 39.4
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 46.8
		97.5% Chebyshev(Mean, Sd) UCL 52.23
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 62.9
95% Approximate Gamma UCL	40.09	
95% Adjusted Gamma UCL	41.08	

Potential UCL to Use	Use 95% Student's-t UCL 39.41

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1f
ProUCL Output for Surface Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Surface_F-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	23

Raw Statistics		**Log-transformed Statistics**	
Minimum	3445	Minimum of Log Data	8.145
Maximum	16400	Maximum of Log Data	9.705
Mean	8447	Mean of log Data	8.935
Median	7480	SD of log Data	0.474
SD	4017		
Coefficient of Variation	0.476		
Skewness	0.767		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Test Statistic	0.954
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9886	95% H-UCL	10347
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12220
95% Adjusted-CLT UCL (Chen-1995)	9968	97.5% Chebyshev (MVUE) UCL	13851
95% Modified-t UCL (Johnson-1978)	9908	99% Chebyshev (MVUE) UCL	17055

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.251	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1987	
MLE of Mean	8447	
MLE of Standard Deviation	4097	
nu star	195.6	
Approximate Chi Square Value (.05)	164.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 9825
Adjusted Chi Square Value	162.1	95% Jackknife UCL 9886
		95% Standard Bootstrap UCL 9786
Anderson-Darling Test Statistic	0.413	95% Bootstrap-t UCL 10058
Anderson-Darling 5% Critical Value	0.747	95% Hall's Bootstrap UCL 9902
Kolmogorov-Smirnov Test Statistic	0.115	95% Percentile Bootstrap UCL 9816
Kolmogorov-Smirnov 5% Critical Value	0.182	95% BCA Bootstrap UCL 9982
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 12098
		97.5% Chebyshev(Mean, Sd) UCL 13678
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 16782
95% Approximate Gamma UCL	10060	
95% Adjusted Gamma UCL	10189	

Potential UCL to Use	Use 95% Approximate Gamma UCL 10060

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	23	Number of Detected Data	22
Number of Distinct Detected Data	20	Number of Non-Detect Data	1
		Percent Non-Detects	4.35%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	15.5	Maximum Detected	2.741
Mean of Detected	6.586	Mean of Detected	1.751
SD of Detected	3.374	SD of Detected	0.56
Minimum Non-Detect	0.93	Minimum Non-Detect	-0.0726
Maximum Non-Detect	0.93	Maximum Non-Detect	-0.0726

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.936	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.911	5% Shapiro Wilk Critical Value	0.911
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.32	Mean	1.642
SD	3.535	SD	0.758
95% DL/2 (t) UCL	7.586	95% H-Stat (DL/2) UCL	9.869
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.273	Mean in Log Scale	1.693
SD	3.555	SD in Log Scale	0.615
95% MLE (t) UCL	7.546	Mean in Original Scale	6.365
95% MLE (Tiku) UCL	7.537	SD in Original Scale	3.463
		95% t UCL	7.605
		95% Percentile Bootstrap UCL	7.526
		95% BCA Bootstrap UCL	7.661

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	3.392	**Data appear Normal at 5% Significance Level**	
Theta Star	1.942		
nu star	149.2		
A-D Test Statistic	0.237	**Nonparametric Statistics**	
5% A-D Critical Value	0.747	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.747	Mean	6.352
5% K-S Critical Value	0.186	SD	3.406
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.727
		95% KM (t) UCL	7.6
Assuming Gamma Distribution		95% KM (z) UCL	7.548
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.57
Minimum	1E-12	95% KM (bootstrap t) UCL	7.725
Maximum	15.5	95% KM (BCA) UCL	7.63
Mean	6.3	95% KM (Percentile Bootstrap) UCL	7.604
Median	5.6	95% KM (Chebyshev) UCL	9.521
SD	3.571	97.5% KM (Chebyshev) UCL	10.89
k star	0.437	99% KM (Chebyshev) UCL	13.58
Theta star	14.41		
Nu star	20.1	**Potential UCLs to Use**	
AppChi2	10.93	95% KM (t) UCL	7.6
95% Gamma Approximate UCL	11.59	95% KM (Percentile Bootstrap) UCL	7.604
95% Adjusted Gamma UCL	12.13		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	22	Number of Detected Data	20
Number of Distinct Detected Data	18	Number of Non-Detect Data	2
		Percent Non-Detects	9.09%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.041	Minimum Detected	-3.194
Maximum Detected	4.3	Maximum Detected	1.459
Mean of Detected	0.945	Mean of Detected	-0.714
SD of Detected	1.093	SD of Detected	1.299
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	13
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	40.91%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.765	Shapiro Wilk Test Statistic	0.967
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.876	Mean	-0.799
SD	1.063	SD	1.266
95% DL/2 (t) UCL	1.266	95% H-Stat (DL/2) UCL	2.277
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.533	Mean in Log Scale	-0.84
SD	1.423	SD in Log Scale	1.301
95% MLE (t) UCL	1.055	Mean in Original Scale	0.87
95% MLE (Tiku) UCL	1.124	SD in Original Scale	1.068
		95% t UCL	1.262
		95% Percentile Bootstrap UCL	1.259
		95% BCA Bootstrap UCL	1.339

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.79	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.196		
nu star	31.6		
A-D Test Statistic	0.2	**Nonparametric Statistics**	
5% A-D Critical Value	0.773	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.773	Mean	0.87
5% K-S Critical Value	0.2	SD	1.043
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.228
		95% KM (t) UCL	1.263
Assuming Gamma Distribution		95% KM (z) UCL	1.246
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.262
Minimum	1E-12	95% KM (bootstrap t) UCL	1.508
Maximum	4.3	95% KM (BCA) UCL	1.221
Mean	0.861	95% KM (Percentile Bootstrap) UCL	1.254
Median	0.5	95% KM (Chebyshev) UCL	1.865
SD	1.075	97.5% KM (Chebyshev) UCL	2.296
k star	0.336	99% KM (Chebyshev) UCL	3.141
Theta star	2.563		
Nu star	14.78	**Potential UCLs to Use**	
AppChi2	7.11	95% KM (Chebyshev) UCL	1.865
95% Gamma Approximate UCL	1.79		
95% Adjusted Gamma UCL	1.895		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	22	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	4
		Percent Non-Detects	18.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.065	Minimum Detected	-2.733
Maximum Detected	4.1	Maximum Detected	1.411
Mean of Detected	0.815	Mean of Detected	-0.688
SD of Detected	0.959	SD of Detected	1.042
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	50.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.67	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.702	Mean	-0.864
SD	0.898	SD	1.013
95% DL/2 (t) UCL	1.031	95% H-Stat (DL/2) UCL	1.251
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.224	Mean in Log Scale	-0.897
SD	1.343	SD in Log Scale	1.047
95% MLE (t) UCL	0.717	Mean in Original Scale	0.697
95% MLE (Tiku) UCL	0.837	SD in Original Scale	0.901
		95% t UCL	1.027
		95% Percentile Bootstrap UCL	1.041
		95% BCA Bootstrap UCL	1.159

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.014	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.804		
nu star	36.5		
A-D Test Statistic	0.45	**Nonparametric Statistics**	
5% A-D Critical Value	0.763	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.763	Mean	0.703
5% K-S Critical Value	0.209	SD	0.878
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.193
		95% KM (t) UCL	1.035
Assuming Gamma Distribution		95% KM (z) UCL	1.021
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.034
Minimum	1E-12	95% KM (bootstrap t) UCL	1.469
Maximum	4.1	95% KM (BCA) UCL	1.049
Mean	0.71	95% KM (Percentile Bootstrap) UCL	1.039
Median	0.425	95% KM (Chebyshev) UCL	1.545
SD	0.895	97.5% KM (Chebyshev) UCL	1.909
k star	0.377	99% KM (Chebyshev) UCL	2.625
Theta star	1.881		
Nu star	16.61	**Potential UCLs to Use**	
AppChi2	8.394	95% KM (BCA) UCL	1.049
95% Gamma Approximate UCL	1.405		
95% Adjusted Gamma UCL	1.481		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	22	Number of Detected Data	21
Number of Distinct Detected Data	19	Number of Non-Detect Data	1
		Percent Non-Detects	4.55%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.08	Minimum Detected	-2.526
Maximum Detected	5.1	Maximum Detected	1.629
Mean of Detected	1.027	Mean of Detected	-0.566
SD of Detected	1.215	SD of Detected	1.189
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.36	Maximum Non-Detect	-1.022

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.716	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.908	5% Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.989	Mean	-0.618
SD	1.2	SD	1.186
95% DL/2 (t) UCL	1.429	95% H-Stat (DL/2) UCL	2.279
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.64	Mean in Log Scale	-0.621
SD	1.564	SD in Log Scale	1.19
95% MLE (t) UCL	1.214	Mean in Original Scale	0.988
95% MLE (Tiku) UCL	1.266	SD in Original Scale	1.2
		95% t UCL	1.428
		95% Percentile Bootstrap UCL	1.451
		95% BCA Bootstrap UCL	1.572

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.869	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.182		
nu star	36.5		
A-D Test Statistic	0.417	**Nonparametric Statistics**	
5% A-D Critical Value	0.771	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.771	Mean	0.988
5% K-S Critical Value	0.195	SD	1.173
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.256
		95% KM (t) UCL	1.429
Assuming Gamma Distribution		95% KM (z) UCL	1.41
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.429
Minimum	1E-12	95% KM (bootstrap t) UCL	1.797
Maximum	5.1	95% KM (BCA) UCL	1.413
Mean	0.981	95% KM (Percentile Bootstrap) UCL	1.431
Median	0.72	95% KM (Chebyshev) UCL	2.105
SD	1.206	97.5% KM (Chebyshev) UCL	2.588
k star	0.354	99% KM (Chebyshev) UCL	3.538
Theta star	2.772		
Nu star	15.56	**Potential UCLs to Use**	
AppChi2	7.654	95% KM (Chebyshev) UCL	2.105
95% Gamma Approximate UCL	1.994		
95% Adjusted Gamma UCL	2.107		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	22	Number of Detected Data	21
Number of Distinct Detected Data	20	Number of Non-Detect Data	1
		Percent Non-Detects	4.55%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.07	Minimum Detected	-2.659
Maximum Detected	4.4	Maximum Detected	1.482
Mean of Detected	0.936	Mean of Detected	-0.774
SD of Detected	1.243	SD of Detected	1.231
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.36	Maximum Non-Detect	-1.022

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.681	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.908	5% Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.901	Mean	-0.816
SD	1.223	SD	1.218
95% DL/2 (t) UCL	1.35	95% H-Stat (DL/2) UCL	2.004
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.336	Mean in Log Scale	-0.821
SD	1.775	SD in Log Scale	1.222
95% MLE (t) UCL	0.987	Mean in Original Scale	0.901
95% MLE (Tiku) UCL	1.104	SD in Original Scale	1.224
		95% t UCL	1.35
		95% Percentile Bootstrap UCL	1.357
		95% BCA Bootstrap UCL	1.439

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.747	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.253		
nu star	31.37		
A-D Test Statistic	0.701	**Nonparametric Statistics**	
5% A-D Critical Value	0.778	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.778	Mean	0.901
5% K-S Critical Value	0.196	SD	1.195
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.261
		95% KM (t) UCL	1.351
Assuming Gamma Distribution		95% KM (z) UCL	1.331
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.35
Minimum	1E-12	95% KM (bootstrap t) UCL	1.718
Maximum	4.4	95% KM (BCA) UCL	1.372
Mean	0.893	95% KM (Percentile Bootstrap) UCL	1.344
Median	0.42	95% KM (Chebyshev) UCL	2.04
SD	1.229	97.5% KM (Chebyshev) UCL	2.533
k star	0.338	99% KM (Chebyshev) UCL	3.5
Theta star	2.642		
Nu star	14.87	**Potential UCLs to Use**	
AppChi2	7.174	95% KM (Chebyshev) UCL	2.04
95% Gamma Approximate UCL	1.852		
95% Adjusted Gamma UCL	1.961		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	23	Number of Detected Data	20
Number of Distinct Detected Data	19	Number of Non-Detect Data	3
		Percent Non-Detects	13.04%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.11	Minimum Detected	-2.207
Maximum Detected	10.5	Maximum Detected	2.351
Mean of Detected	3.553	Mean of Detected	0.515
SD of Detected	3.558	SD of Detected	1.455
Minimum Non-Detect	0.09	Minimum Non-Detect	-2.408
Maximum Non-Detect	0.1	Maximum Non-Detect	-2.303

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	3
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	20
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	13.04%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.847	Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.096	Mean	0.0478
SD	3.52	SD	1.83
95% DL/2 (t) UCL	4.356	95% H-Stat (DL/2) UCL	24.37
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.809	Mean in Log Scale	0.0871
SD	3.82	SD in Log Scale	1.764
95% MLE (t) UCL	4.177	Mean in Original Scale	3.098
95% MLE (Tiku) UCL	4.143	SD in Original Scale	3.518
		95% t UCL	4.358
		95% Percentile Bootstrap UCL	4.279
		95% BCA Bootstrap UCL	4.454

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.704	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	5.044		
nu star	28.18		
A-D Test Statistic	0.523	**Nonparametric Statistics**	
5% A-D Critical Value	0.778	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.778	Mean	3.104
5% K-S Critical Value	0.201	SD	3.435
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.735
		95% KM (t) UCL	4.366
Assuming Gamma Distribution		95% KM (z) UCL	4.313
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.355
Minimum	1E-12	95% KM (bootstrap t) UCL	4.631
Maximum	10.5	95% KM (BCA) UCL	4.443
Mean	3.09	95% KM (Percentile Bootstrap) UCL	4.334
Median	1.1	95% KM (Chebyshev) UCL	6.307
SD	3.525	97.5% KM (Chebyshev) UCL	7.693
k star	0.181	99% KM (Chebyshev) UCL	10.42
Theta star	17.03		
Nu star	8.345	**Potential UCLs to Use**	
AppChi2	2.936	95% KM (Chebyshev) UCL	6.307
95% Gamma Approximate UCL	8.78		
95% Adjusted Gamma UCL	9.52		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	22	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	7
		Percent Non-Detects	31.82%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.05	Minimum Detected	-2.996
Maximum Detected	0.92	Maximum Detected	-0.0834
Mean of Detected	0.237	Mean of Detected	-1.855
SD of Detected	0.241	SD of Detected	0.932
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	86.36%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.767	Shapiro Wilk Test Statistic	0.922
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.222	Mean	-1.792
SD	0.198	SD	0.767
95% DL/2 (t) UCL	0.295	95% H-Stat (DL/2) UCL	0.327
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.948
		SD in Log Scale	0.799
		Mean in Original Scale	0.201
		SD in Original Scale	0.206
		95% t UCL	0.276
		95% Percentile Bootstrap UCL	0.28
		95% BCA Bootstrap UCL	0.304

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.127	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.21		
nu star	33.8		
A-D Test Statistic	0.559	**Nonparametric Statistics**	
5% A-D Critical Value	0.757	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.757	Mean	0.205
5% K-S Critical Value	0.226	SD	0.203
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0467
		95% KM (t) UCL	0.285
Assuming Gamma Distribution		95% KM (z) UCL	0.282
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.285
Minimum	0.05	95% KM (bootstrap t) UCL	0.323
Maximum	0.92	95% KM (BCA) UCL	0.289
Mean	0.237	95% KM (Percentile Bootstrap) UCL	0.287
Median	0.22	95% KM (Chebyshev) UCL	0.408
SD	0.197	97.5% KM (Chebyshev) UCL	0.497
k star	1.688	99% KM (Chebyshev) UCL	0.67
Theta star	0.141		
Nu star	74.26	**Potential UCLs to Use**	
AppChi2	55.42	95% KM (Percentile Bootstrap) UCL	0.287
95% Gamma Approximate UCL	0.318		
95% Adjusted Gamma UCL	0.325		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TABLE D-1f
ProUCL Output for Surface Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

Chromium Total

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.3	Minimum of Log Data	1.459
Maximum	28.8	Maximum of Log Data	3.36
Mean	16.11	Mean of log Data	2.695
Median	14.2	SD of log Data	0.452
SD	6.239		
Coefficient of Variation	0.387		
Skewness	0.354		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.941	Shapiro Wilk Test Statistic	0.887
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	18.35	95% H-UCL	19.76
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	23.25
95% Adjusted-CLT UCL (Chen-1995)	18.36	97.5% Chebyshev (MVUE) UCL	26.24
95% Modified-t UCL (Johnson-1978)	18.36	99% Chebyshev (MVUE) UCL	32.13

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	5.286	**Data appear Normal at 5% Significance Level**
Theta Star	3.049	
MLE of Mean	16.11	
MLE of Standard Deviation	7.009	
nu star	243.1	
Approximate Chi Square Value (.05)	208	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 18.25
Adjusted Chi Square Value	205.7	95% Jackknife UCL 18.35
		95% Standard Bootstrap UCL 18.25
Anderson-Darling Test Statistic	0.69	95% Bootstrap-t UCL 18.53
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL 18.52
Kolmogorov-Smirnov Test Statistic	0.175	95% Percentile Bootstrap UCL 18.14
Kolmogorov-Smirnov 5% Critical Value	0.182	95% BCA Bootstrap UCL 18.36
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 21.78
		97.5% Chebyshev(Mean, Sd) UCL 24.24
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 29.06
95% Approximate Gamma UCL	18.83	
95% Adjusted Gamma UCL	19.05	

Potential UCL to Use	Use 95% Student's-t UCL 18.35

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.7	Minimum of Log Data	0.993
Maximum	10.1	Maximum of Log Data	2.313
Mean	5.752	Mean of log Data	1.717
Median	5.6	SD of log Data	0.267
SD	1.475		
Coefficient of Variation	0.256		
Skewness	0.751		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.902	Shapiro Wilk Test Statistic	0.896
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.28	95% H-UCL	6.395
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.178
95% Adjusted-CLT UCL (Chen-1995)	6.309	97.5% Chebyshev (MVUE) UCL	7.79
95% Modified-t UCL (Johnson-1978)	6.288	99% Chebyshev (MVUE) UCL	8.994

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	13.56	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	0.424	
MLE of Mean	5.752	
MLE of Standard Deviation	1.562	
nu star	623.9	
Approximate Chi Square Value (.05)	566.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 6.258
Adjusted Chi Square Value	563	95% Jackknife UCL 6.28
		95% Standard Bootstrap UCL 6.249
Anderson-Darling Test Statistic	0.976	95% Bootstrap-t UCL 6.317
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL 6.562
Kolmogorov-Smirnov Test Statistic	0.178	95% Percentile Bootstrap UCL 6.243
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL 6.339
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.092
		97.5% Chebyshev(Mean, Sd) UCL 7.672
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.812
95% Approximate Gamma UCL	6.33	
95% Adjusted Gamma UCL	6.374	

Potential UCL to Use	Use 95% Approximate Gamma UCL 6.33

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	22	Number of Detected Data	16
Number of Distinct Detected Data	15	Number of Non-Detect Data	6
		Percent Non-Detects	27.27%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.062	Minimum Detected	-2.781
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.258	Mean of Detected	-1.713
SD of Detected	0.321	SD of Detected	0.769
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	20
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	90.91%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.541	Shapiro Wilk Test Statistic	0.917
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.239	Mean	-1.698
SD	0.273	SD	0.651
95% DL/2 (t) UCL	0.339	95% H-Stat (DL/2) UCL	0.307
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.755
		SD in Log Scale	0.667
		Mean in Original Scale	0.231
		SD in Original Scale	0.275
		95% t UCL	0.332
		95% Percentile Bootstrap UCL	0.341
		95% BCA Bootstrap UCL	0.417

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.299	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.198		
nu star	41.57		
A-D Test Statistic	1.048	**Nonparametric Statistics**	
5% A-D Critical Value	0.754	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.754	Mean	0.231
5% K-S Critical Value	0.219	SD	0.271
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0604
		95% KM (t) UCL	0.335
Assuming Gamma Distribution		95% KM (z) UCL	0.331
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.335
Minimum	0.062	95% KM (bootstrap t) UCL	0.489
Maximum	1.4	95% KM (BCA) UCL	0.351
Mean	0.259	95% KM (Percentile Bootstrap) UCL	0.339
Median	0.196	95% KM (Chebyshev) UCL	0.495
SD	0.272	97.5% KM (Chebyshev) UCL	0.609
k star	1.789	99% KM (Chebyshev) UCL	0.832
Theta star	0.145		
Nu star	78.72	**Potential UCLs to Use**	
AppChi2	59.28	95% KM (BCA) UCL	0.351
95% Gamma Approximate UCL	0.344		
95% Adjusted Gamma UCL	0.351		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dieldrin

General Statistics

Number of Valid Data	14	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	9
		Percent Non-Detects	64.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0012	Minimum Detected	-6.725
Maximum Detected	0.044	Maximum Detected	-3.124
Mean of Detected	0.0105	Mean of Detected	-5.652
SD of Detected	0.0188	SD of Detected	1.506
Minimum Non-Detect	0.0035	Minimum Non-Detect	-5.655
Maximum Non-Detect	0.019	Maximum Non-Detect	-3.963

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.86%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.606	Shapiro Wilk Test Statistic	0.789
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00554	Mean	-5.927
SD	0.0113	SD	0.96
95% DL/2 (t) UCL	0.0109	95% H-Stat (DL/2) UCL	0.00873
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-6.196
		SD in Log Scale	0.972
		Mean in Original Scale	0.00478
		SD in Original Scale	0.0113
		95% t UCL	0.0101
		95% Percentile Bootstrap UCL	0.0107
		95% BCA Bootstrap UCL	0.014

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.36	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	0.0293		
nu star	3.6		
A-D Test Statistic	0.806	**Nonparametric Statistics**	
5% A-D Critical Value	0.708	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.708	Mean	0.00468
5% K-S Critical Value	0.37	SD	0.0109
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.00327
		95% KM (t) UCL	0.0105
Assuming Gamma Distribution		95% KM (z) UCL	0.0101
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0101
Minimum	0.0012	95% KM (bootstrap t) UCL	0.136
Maximum	0.044	95% KM (BCA) UCL	0.0108
Mean	0.0104	95% KM (Percentile Bootstrap) UCL	0.0107
Median	0.0104	95% KM (Chebyshev) UCL	0.0189
SD	0.0109	97.5% KM (Chebyshev) UCL	0.0251
k star	1.012	99% KM (Chebyshev) UCL	0.0372
Theta star	0.0103		
Nu star	28.32	**Potential UCLs to Use**	
AppChi2	17.18	95% KM (t) UCL	0.0105
95% Gamma Approximate UCL	0.0171		
95% Adjusted Gamma UCL	0.0183		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	22	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	19
		Percent Non-Detects	86.36%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.098	Minimum Detected	-2.323
Maximum Detected	1.2	Maximum Detected	0.182
Mean of Detected	0.499	Mean of Detected	-1.25
SD of Detected	0.609	SD of Detected	1.291
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	0.85	Maximum Non-Detect	-0.163

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	21
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	95.45%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.819	Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.272	Mean	-1.465
SD	0.225	SD	0.502
95% DL/2 (t) UCL	0.354	95% H-Stat (DL/2) UCL	0.326
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.858
		SD in Log Scale	0.624
		Mean in Original Scale	0.202
		SD in Original Scale	0.232
		95% t UCL	0.287
		95% Percentile Bootstrap UCL	0.3
		95% BCA Bootstrap UCL	0.352

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.197
5% K-S Critical Value	N/A	SD	0.225
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.071
		95% KM (t) UCL	0.319
Assuming Gamma Distribution		95% KM (z) UCL	0.314
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.339
Minimum	N/A	95% KM (bootstrap t) UCL	0.362
Maximum	N/A	95% KM (BCA) UCL	1.2
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1.2
Median	N/A	95% KM (Chebyshev) UCL	0.506
SD	N/A	97.5% KM (Chebyshev) UCL	0.64
k star	N/A	99% KM (Chebyshev) UCL	0.904
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	

AppChi2	N/A	95% KM (t) UCL	0.319
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	1.2
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	22	Number of Detected Data	19
Number of Distinct Detected Data	17	Number of Non-Detect Data	3
		Percent Non-Detects	13.64%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.055	Minimum Detected	-2.9
Maximum Detected	2.9	Maximum Detected	1.065
Mean of Detected	0.581	Mean of Detected	-1.018
SD of Detected	0.659	SD of Detected	1.049
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	10
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	54.55%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.686	Shapiro Wilk Test Statistic	0.946
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.528	Mean	-1.107
SD	0.626	SD	0.998
95% DL/2 (t) UCL	0.757	95% H-Stat (DL/2) UCL	0.954
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.18	Mean in Log Scale	-1.13
SD	0.951	SD in Log Scale	1.017
95% MLE (t) UCL	0.529	Mean in Original Scale	0.524
95% MLE (Tiku) UCL	0.641	SD in Original Scale	0.628
		95% t UCL	0.755
		95% Percentile Bootstrap UCL	0.747
		95% BCA Bootstrap UCL	0.836

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.037	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.56		
nu star	39.41		
A-D Test Statistic	0.435	**Nonparametric Statistics**	
5% A-D Critical Value	0.765	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.765	Mean	0.53
5% K-S Critical Value	0.203	SD	0.612
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.134
		95% KM (t) UCL	0.761
Assuming Gamma Distribution		95% KM (z) UCL	0.751
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.76
Minimum	0.055	95% KM (bootstrap t) UCL	1.033
Maximum	2.9	95% KM (BCA) UCL	0.772
Mean	0.538	95% KM (Percentile Bootstrap) UCL	0.765
Median	0.392	95% KM (Chebyshev) UCL	1.116
SD	0.623	97.5% KM (Chebyshev) UCL	1.369
k star	1.066	99% KM (Chebyshev) UCL	1.867
Theta star	0.505		
Nu star	46.89	**Potential UCLs to Use**	
AppChi2	32.17	95% KM (BCA) UCL	0.772
95% Gamma Approximate UCL	0.783		
95% Adjusted Gamma UCL	0.806		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	22

Raw Statistics		**Log-transformed Statistics**	
Minimum	6780	Minimum of Log Data	8.822
Maximum	20300	Maximum of Log Data	9.918
Mean	12779	Mean of log Data	9.418
Median	12400	SD of log Data	0.288
SD	3491		
Coefficient of Variation	0.273		
Skewness	0.2		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.973	Shapiro Wilk Test Statistic	0.958
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14029	95% H-UCL	14338
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16201
95% Adjusted-CLT UCL (Chen-1995)	14009	97.5% Chebyshev (MVUE) UCL	17673
95% Modified-t UCL (Johnson-1978)	14034	99% Chebyshev (MVUE) UCL	20563

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	11.61	**Data appear Normal at 5% Significance Level**
Theta Star	1100	
MLE of Mean	12779	
MLE of Standard Deviation	3750	
nu star	534.2	
Approximate Chi Square Value (.05)	481.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 13977
Adjusted Chi Square Value	478	95% Jackknife UCL 14029
		95% Standard Bootstrap UCL 13906
Anderson-Darling Test Statistic	0.309	95% Bootstrap-t UCL 14062
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL 14000
Kolmogorov-Smirnov Test Statistic	0.13	95% Percentile Bootstrap UCL 13999
Kolmogorov-Smirnov 5% Critical Value	0.181	95% BCA Bootstrap UCL 13989
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15952
		97.5% Chebyshev(Mean, Sd) UCL 17325
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20022
95% Approximate Gamma UCL	14175	
95% Adjusted Gamma UCL	14282	

Potential UCL to Use		Use 95% Student's-t UCL	14029

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	23

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.1	Minimum of Log Data	2.208
Maximum	758	Maximum of Log Data	6.631
Mean	145.1	Mean of log Data	4.362
Median	138	SD of log Data	1.227
SD	165.4		
Coefficient of Variation	1.14		
Skewness	2.47		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.733	Shapiro Wilk Test Statistic	0.93
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	204.3	95% H-UCL	350.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	364.8
95% Adjusted-CLT UCL (Chen-1995)	220.8	97.5% Chebyshev (MVUE) UCL	454.3
95% Modified-t UCL (Johnson-1978)	207.3	99% Chebyshev (MVUE) UCL	630.1

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.85	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	170.7	
MLE of Mean	145.1	
MLE of Standard Deviation	157.4	
nu star	39.11	
Approximate Chi Square Value (.05)	25.78	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 201.8
Adjusted Chi Square Value	25	95% Jackknife UCL 204.3
		95% Standard Bootstrap UCL 199.2
Anderson-Darling Test Statistic	0.69	95% Bootstrap-t UCL 238.2
Anderson-Darling 5% Critical Value	0.772	95% Hall's Bootstrap UCL 464.2
Kolmogorov-Smirnov Test Statistic	0.165	95% Percentile Bootstrap UCL 205.2
Kolmogorov-Smirnov 5% Critical Value	0.187	95% BCA Bootstrap UCL 224
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 295.4
		97.5% Chebyshev(Mean, Sd) UCL 360.5
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 488.2
95% Approximate Gamma UCL	220.1	
95% Adjusted Gamma UCL	227	

Potential UCL to Use	Use 95% Approximate Gamma UCL 220.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	23

Raw Statistics		**Log-transformed Statistics**	
Minimum	108.1	Minimum of Log Data	4.683
Maximum	438	Maximum of Log Data	6.082
Mean	254.7	Mean of log Data	5.448
Median	265	SD of log Data	0.453
SD	105.1		
Coefficient of Variation	0.413		
Skewness	0.113		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.927	Shapiro Wilk Test Statistic	0.918
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	292.3	95% H-UCL	310.3
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	365.1
95% Adjusted-CLT UCL (Chen-1995)	291.3	97.5% Chebyshev (MVUE) UCL	412.2
95% Modified-t UCL (Johnson-1978)	292.4	99% Chebyshev (MVUE) UCL	504.8

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.905	**Data appear Normal at 5% Significance Level**
Theta Star	51.93	
MLE of Mean	254.7	
MLE of Standard Deviation	115	
nu star	225.6	
Approximate Chi Square Value (.05)	191.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 290.8
Adjusted Chi Square Value	189.6	95% Jackknife UCL 292.3
		95% Standard Bootstrap UCL 290.5
Anderson-Darling Test Statistic	0.626	95% Bootstrap-t UCL 291.9
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL 292.1
Kolmogorov-Smirnov Test Statistic	0.144	95% Percentile Bootstrap UCL 288.6
Kolmogorov-Smirnov 5% Critical Value	0.182	95% BCA Bootstrap UCL 290
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 350.2
		97.5% Chebyshev(Mean, Sd) UCL 391.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 472.8
95% Approximate Gamma UCL	299.5	
95% Adjusted Gamma UCL	303.1	

Potential UCL to Use	Use 95% Student's-t UCL 292.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	23	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	12
		Percent Non-Detects	52.17%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.08	Minimum Detected	-2.526
Maximum Detected	1.1	Maximum Detected	0.0953
Mean of Detected	0.433	Mean of Detected	-1.2
SD of Detected	0.35	SD of Detected	0.956
Minimum Non-Detect	0.07	Minimum Non-Detect	-2.659
Maximum Non-Detect	1.5	Maximum Non-Detect	0.405

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	23
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Test Statistic	0.891
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.308	Mean	-1.671
SD	0.303	SD	1.06
95% DL/2 (t) UCL	0.416	95% H-Stat (DL/2) UCL	0.594
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.946
		SD in Log Scale	1.035
		Mean in Original Scale	0.249
		SD in Original Scale	0.298
		95% t UCL	0.355
		95% Percentile Bootstrap UCL	0.356
		95% BCA Bootstrap UCL	0.372

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.17	**Data appear Normal at 5% Significance Level**	
Theta Star	0.37		
nu star	25.75		
A-D Test Statistic	0.483	**Nonparametric Statistics**	
5% A-D Critical Value	0.742	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.742	Mean	0.275
5% K-S Critical Value	0.26	SD	0.292
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0673
		95% KM (t) UCL	0.391
Assuming Gamma Distribution		95% KM (z) UCL	0.386
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.387
Minimum	0.08	95% KM (bootstrap t) UCL	0.422
Maximum	1.1	95% KM (BCA) UCL	0.414
Mean	0.435	95% KM (Percentile Bootstrap) UCL	0.403
Median	0.43	95% KM (Chebyshev) UCL	0.569
SD	0.253	97.5% KM (Chebyshev) UCL	0.696
k star	2.37	99% KM (Chebyshev) UCL	0.945
Theta star	0.184		
Nu star	109	**Potential UCLs to Use**	
AppChi2	85.91	95% KM (t) UCL	0.391
95% Gamma Approximate UCL	0.552	95% KM (Percentile Bootstrap) UCL	0.403
95% Adjusted Gamma UCL	0.562		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	23	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	21
		Percent Non-Detects	91.30%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.5	Minimum Detected	0.405
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	1.6	Mean of Detected	0.468
SD of Detected	0.141	SD of Detected	0.0885
Minimum Non-Detect	1.2	Minimum Non-Detect	0.182
Maximum Non-Detect	1.504	Maximum Non-Detect	0.408

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	22
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	95.65%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.747	Mean	-0.332
SD	0.274	SD	0.259
95% DL/2 (t) UCL	0.845	95% H-Stat (DL/2) UCL	0.819
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.509
5% K-S Critical Value	N/A	SD	0.0408
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.012
		95% KM (t) UCL	1.529
Assuming Gamma Distribution		95% KM (z) UCL	1.528
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.641
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1.7

TABLE D-1f
ProUCL Output for Surface Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

Median	N/A	95% KM (Chebyshev) UCL	1.561
SD	N/A	97.5% KM (Chebyshev) UCL	1.584
k star	N/A	99% KM (Chebyshev) UCL	1.628
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.529
95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	1.7
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	23

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.7	Minimum of Log Data	2.272
Maximum	218	Maximum of Log Data	5.384
Mean	43.26	Mean of log Data	3.461
Median	27.3	SD of log Data	0.714
SD	46.39		
Coefficient of Variation	1.072		
Skewness	2.916		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.605	Shapiro Wilk Test Statistic	0.896
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	59.87	95% H-UCL	57.29
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	68.84
95% Adjusted-CLT UCL (Chen-1995)	65.46	97.5% Chebyshev (MVUE) UCL	81.08
95% Modified-t UCL (Johnson-1978)	60.85	99% Chebyshev (MVUE) UCL	105.1

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.579	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	27.41	
MLE of Mean	43.26	
MLE of Standard Deviation	34.43	
nu star	72.61	
Approximate Chi Square Value (.05)	53.99	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 59.17
Adjusted Chi Square Value	52.83	95% Jackknife UCL 59.87
		95% Standard Bootstrap UCL 58.71
Anderson-Darling Test Statistic	1.808	95% Bootstrap-t UCL 84.47
Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL 116.9
Kolmogorov-Smirnov Test Statistic	0.309	95% Percentile Bootstrap UCL 59.39
Kolmogorov-Smirnov 5% Critical Value	0.184	95% BCA Bootstrap UCL 65.98
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 85.43
		97.5% Chebyshev(Mean, Sd) UCL 103.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 139.5
95% Approximate Gamma UCL	58.18	
95% Adjusted Gamma UCL	59.46	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 85.43

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics

Number of Valid Observations	23	Number of Distinct Observations	23

Raw Statistics		**Log-transformed Statistics**	
Minimum	23.7	Minimum of Log Data	3.165
Maximum	8440	Maximum of Log Data	9.041
Mean	1024	Mean of log Data	5.873
Median	340	SD of log Data	1.585
SD	1771		
Coefficient of Variation	1.729		
Skewness	3.62		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.555	Shapiro Wilk Test Statistic	0.955
Shapiro Wilk Critical Value	0.914	Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1658	95% H-UCL	3916
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3110
95% Adjusted-CLT UCL (Chen-1995)	1929	97.5% Chebyshev (MVUE) UCL	3971
95% Modified-t UCL (Johnson-1978)	1704	99% Chebyshev (MVUE) UCL	5662

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.538	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1902	
MLE of Mean	1024	
MLE of Standard Deviation	1396	
nu star	24.77	
Approximate Chi Square Value (.05)	14.43	**Nonparametric Statistics**
Adjusted Level of Significance	0.0389	95% CLT UCL 1631
Adjusted Chi Square Value	13.86	95% Jackknife UCL 1658
		95% Standard Bootstrap UCL 1611
Anderson-Darling Test Statistic	0.636	95% Bootstrap-t UCL 2431
Anderson-Darling 5% Critical Value	0.797	95% Hall's Bootstrap UCL 3980
Kolmogorov-Smirnov Test Statistic	0.143	95% Percentile Bootstrap UCL 1663
Kolmogorov-Smirnov 5% Critical Value	0.191	95% BCA Bootstrap UCL 1986
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2633
		97.5% Chebyshev(Mean, Sd) UCL 3330
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 4698
95% Approximate Gamma UCL	1757	
95% Adjusted Gamma UCL	1830	

Potential UCL to Use	Use 95% Approximate Gamma UCL 1757

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Surface_H-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	1500	Minimum of Log Data	7.313
Maximum	11100	Maximum of Log Data	9.315
Mean	6462	Mean of log Data	8.645
Median	5890	SD of log Data	0.587
SD	3045		
Coefficient of Variation	0.471		
Skewness	0.206		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.902
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	8227	95% H-UCL	10681
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12099
95% Adjusted-CLT UCL (Chen-1995)	8113	97.5% Chebyshev (MVUE) UCL	14470
95% Modified-t UCL (Johnson-1978)	8238	99% Chebyshev (MVUE) UCL	19128

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.895	**Data appear Normal at 5% Significance Level**
Theta Star	2232	
MLE of Mean	6462	
MLE of Standard Deviation	3798	
nu star	57.91	
Approximate Chi Square Value (.05)	41.41	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 8046
Adjusted Chi Square Value	39	95% Jackknife UCL 8227
		95% Standard Bootstrap UCL 7986
Anderson-Darling Test Statistic	0.259	95% Bootstrap-t UCL 8348
Anderson-Darling 5% Critical Value	0.729	95% Hall's Bootstrap UCL 8308
Kolmogorov-Smirnov Test Statistic	0.125	95% Percentile Bootstrap UCL 7957
Kolmogorov-Smirnov 5% Critical Value	0.268	95% BCA Bootstrap UCL 7978
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 10659
		97.5% Chebyshev(Mean, Sd) UCL 12475
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 16043
95% Approximate Gamma UCL	9036	
95% Adjusted Gamma UCL	9595	

Potential UCL to Use			
		Use 95% Student's-t UCL	8227

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	10	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	1
		Percent Non-Detects	10.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.92	Minimum Detected	-0.0834
Maximum Detected	6.2	Maximum Detected	1.825
Mean of Detected	2.891	Mean of Detected	0.896
SD of Detected	1.719	SD of Detected	0.628
Minimum Non-Detect	8.7	Minimum Non-Detect	2.163
Maximum Non-Detect	8.7	Maximum Non-Detect	2.163

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.93	Shapiro Wilk Test Statistic	0.968
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.037	Mean	0.954
SD	1.685	SD	0.619
95% DL/2 (t) UCL	4.014	95% H-Stat (DL/2) UCL	5.155
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.896
		SD in Log Scale	0.592
		Mean in Original Scale	2.847
		SD in Original Scale	1.626
		95% t UCL	3.79
		95% Percentile Bootstrap UCL	3.68
		95% BCA Bootstrap UCL	3.86

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.196	**Data appear Normal at 5% Significance Level**	
Theta Star	1.317		
nu star	39.53		
A-D Test Statistic	0.178	**Nonparametric Statistics**	
5% A-D Critical Value	0.726	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.726	Mean	2.891
5% K-S Critical Value	0.281	SD	1.62
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.573
		95% KM (t) UCL	3.941
Assuming Gamma Distribution		95% KM (z) UCL	3.833
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.948
Minimum	0.92	95% KM (bootstrap t) UCL	4.361
Maximum	6.2	95% KM (BCA) UCL	3.856
Mean	2.909	95% KM (Percentile Bootstrap) UCL	3.802
Median	2.65	95% KM (Chebyshev) UCL	5.388
SD	1.621	97.5% KM (Chebyshev) UCL	6.469
k star	2.528	99% KM (Chebyshev) UCL	8.591
Theta star	1.151		
Nu star	50.56	**Potential UCLs to Use**	

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

AppChi2	35.23	95% KM (t) UCL	3.941
95% Gamma Approximate UCL	4.174	95% KM (Percentile Bootstrap) UCL	3.802
95% Adjusted Gamma UCL	4.454		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.11	Minimum of Log Data	-2.207
Maximum	4	Maximum of Log Data	1.386
Mean	1.104	Mean of log Data	-0.736
Median	0.32	SD of log Data	1.379
SD	1.47		
Coefficient of Variation	1.331		
Skewness	1.487		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.723	Shapiro Wilk Test Statistic	0.895
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.016	95% H-UCL	9.321
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.231
95% Adjusted-CLT UCL (Chen-1995)	2.17	97.5% Chebyshev (MVUE) UCL	4.175
95% Modified-t UCL (Johnson-1978)	2.056	99% Chebyshev (MVUE) UCL	6.029

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.554	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.992	
MLE of Mean	1.104	
MLE of Standard Deviation	1.483	
nu star	9.98	
Approximate Chi Square Value (.05)	3.929	**Nonparametric Statistics**
Adjusted Level of Significance	0.0231	95% CLT UCL 1.91
Adjusted Chi Square Value	3.169	95% Jackknife UCL 2.016
		95% Standard Bootstrap UCL 1.867
Anderson-Darling Test Statistic	0.616	95% Bootstrap-t UCL 4.012
Anderson-Darling 5% Critical Value	0.754	95% Hall's Bootstrap UCL 5.956
Kolmogorov-Smirnov Test Statistic	0.23	95% Percentile Bootstrap UCL 1.933
Kolmogorov-Smirnov 5% Critical Value	0.29	95% BCA Bootstrap UCL 2.134
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3.24
		97.5% Chebyshev(Mean, Sd) UCL 4.164
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 5.98
95% Approximate Gamma UCL	2.805	
95% Adjusted Gamma UCL	3.478	

Potential UCL to Use	Use 95% Approximate Gamma UCL 2.805

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.13	Minimum of Log Data	-2.04
Maximum	4.3	Maximum of Log Data	1.459
Mean	1.191	Mean of log Data	-0.655
Median	0.32	SD of log Data	1.375
SD	1.561		
Coefficient of Variation	1.311		
Skewness	1.446		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.735	Shapiro Wilk Test Statistic	0.869
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.159	95% H-UCL	9.944
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.483
95% Adjusted-CLT UCL (Chen-1995)	2.315	97.5% Chebyshev (MVUE) UCL	4.5
95% Modified-t UCL (Johnson-1978)	2.201	99% Chebyshev (MVUE) UCL	6.497

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.557	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	2.137	
MLE of Mean	1.191	
MLE of Standard Deviation	1.595	
nu star	10.03	
Approximate Chi Square Value (.05)	3.962	**Nonparametric Statistics**
Adjusted Level of Significance	0.0231	95% CLT UCL 2.047
Adjusted Chi Square Value	3.199	95% Jackknife UCL 2.159
		95% Standard Bootstrap UCL 1.995
Anderson-Darling Test Statistic	0.684	95% Bootstrap-t UCL 3.953
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL 3.291
Kolmogorov-Smirnov Test Statistic	0.247	95% Percentile Bootstrap UCL 2.029
Kolmogorov-Smirnov 5% Critical Value	0.29	95% BCA Bootstrap UCL 2.289
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3.46
		97.5% Chebyshev(Mean, Sd) UCL 4.442
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 6.37
95% Approximate Gamma UCL	3.016	
95% Adjusted Gamma UCL	3.736	

Potential UCL to Use	Use 95% Approximate Gamma UCL 3.016

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.17	Minimum of Log Data	-1.772
Maximum	5	Maximum of Log Data	1.609
Mean	1.449	Mean of log Data	-0.291
Median	0.62	SD of log Data	1.225
SD	1.762		
Coefficient of Variation	1.216		
Skewness	1.48		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.753	Shapiro Wilk Test Statistic	0.932
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.541	95% H-UCL	8.075
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.992
95% Adjusted-CLT UCL (Chen-1995)	2.725	97.5% Chebyshev (MVUE) UCL	5.113
95% Modified-t UCL (Johnson-1978)	2.589	99% Chebyshev (MVUE) UCL	7.315

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.664	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	2.182	
MLE of Mean	1.449	
MLE of Standard Deviation	1.778	
nu star	11.95	
Approximate Chi Square Value (.05)	5.195	**Nonparametric Statistics**
Adjusted Level of Significance	0.0231	95% CLT UCL 2.415
Adjusted Chi Square Value	4.294	95% Jackknife UCL 2.541
		95% Standard Bootstrap UCL 2.37
Anderson-Darling Test Statistic	0.486	95% Bootstrap-t UCL 4.738
Anderson-Darling 5% Critical Value	0.747	95% Hall's Bootstrap UCL 6.276
Kolmogorov-Smirnov Test Statistic	0.214	95% Percentile Bootstrap UCL 2.412
Kolmogorov-Smirnov 5% Critical Value	0.288	95% BCA Bootstrap UCL 2.747
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 4.009
		97.5% Chebyshev(Mean, Sd) UCL 5.117
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 7.292
95% Approximate Gamma UCL	3.333	
95% Adjusted Gamma UCL	4.032	

Potential UCL to Use	Use 95% Approximate Gamma UCL 3.333

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	9	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	2
		Percent Non-Detects	22.22%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.17	Minimum Detected	-1.772
Maximum Detected	4.9	Maximum Detected	1.589
Mean of Detected	1.404	Mean of Detected	-0.342
SD of Detected	1.728	SD of Detected	1.293
Minimum Non-Detect	0.71	Minimum Non-Detect	-0.342
Maximum Non-Detect	1.4	Maximum Non-Detect	0.336

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	66.67%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.929
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.209	Mean	-0.421
SD	1.548	SD	1.143
95% DL/2 (t) UCL	2.169	95% H-Stat (DL/2) UCL	5.337
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.27	Mean in Log Scale	-0.529
SD	2.452	SD in Log Scale	1.18
95% MLE (t) UCL	1.79	Mean in Original Scale	1.16
95% MLE (Tiku) UCL	2.729	SD in Original Scale	1.573
		95% t UCL	2.135
		95% Percentile Bootstrap UCL	2.057
		95% BCA Bootstrap UCL	2.477

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.588	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	2.389		
nu star	8.23		
A-D Test Statistic	0.362	**Nonparametric Statistics**	
5% A-D Critical Value	0.732	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.732	Mean	1.161
5% K-S Critical Value	0.321	SD	1.484
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.535
		95% KM (t) UCL	2.156
Assuming Gamma Distribution		95% KM (z) UCL	2.041
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.139
Minimum	0.17	95% KM (bootstrap t) UCL	3.836
Maximum	4.9	95% KM (BCA) UCL	2.103
Mean	1.285	95% KM (Percentile Bootstrap) UCL	2.083
Median	0.868	95% KM (Chebyshev) UCL	3.493
SD	1.515	97.5% KM (Chebyshev) UCL	4.503

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	0.772	99% KM (Chebyshev) UCL	6.486
Theta star	1.665		
Nu star	13.89	**Potential UCLs to Use**	
AppChi2	6.499	95% KM (Chebyshev) UCL	3.493
95% Gamma Approximate UCL	2.747		
95% Adjusted Gamma UCL	3.265		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	9	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	2
		Percent Non-Detects	22.22%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.02	Minimum Detected	-3.912
Maximum Detected	0.79	Maximum Detected	-0.236
Mean of Detected	0.225	Mean of Detected	-2.332
SD of Detected	0.295	SD of Detected	1.454
Minimum Non-Detect	0.71	Minimum Non-Detect	-0.342
Maximum Non-Detect	1.4	Maximum Non-Detect	0.336

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.762	Shapiro Wilk Test Statistic	0.913
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.292	Mean	-1.969
SD	0.301	SD	1.461
95% DL/2 (t) UCL	0.479	95% H-Stat (DL/2) UCL	3.831
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.379
		SD in Log Scale	1.264
		Mean in Original Scale	0.193
		SD in Original Scale	0.263
		95% t UCL	0.356
		95% Percentile Bootstrap UCL	0.341
		95% BCA Bootstrap UCL	0.383

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.504	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.447		
nu star	7.059		
A-D Test Statistic	0.428	**Nonparametric Statistics**	
5% A-D Critical Value	0.738	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.738	Mean	0.214
5% K-S Critical Value	0.323	SD	0.263
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.103
		95% KM (t) UCL	0.405
Assuming Gamma Distribution		95% KM (z) UCL	0.383
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.407
Minimum	0.02	95% KM (bootstrap t) UCL	1.003
Maximum	0.79	95% KM (BCA) UCL	0.38
Mean	0.224	95% KM (Percentile Bootstrap) UCL	0.394
Median	0.14	95% KM (Chebyshev) UCL	0.663
SD	0.255	97.5% KM (Chebyshev) UCL	0.857

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	0.669	99% KM (Chebyshev) UCL	1.239
Theta star	0.335		
Nu star	12.05	**Potential UCLs to Use**	
AppChi2	5.257	95% KM (Chebyshev) UCL	0.663
95% Gamma Approximate UCL	0.513		
95% Adjusted Gamma UCL	0.62		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

Chromium Total

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.4	Minimum of Log Data	1.482
Maximum	20.6	Maximum of Log Data	3.025
Mean	12.58	Mean of log Data	2.433
Median	11.35	SD of log Data	0.495
SD	5.423		
Coefficient of Variation	0.431		
Skewness	0.0239		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.936	Shapiro Wilk Test Statistic	0.926
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15.72	95% H-UCL	18.55
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	21.53
95% Adjusted-CLT UCL (Chen-1995)	15.41	97.5% Chebyshev (MVUE) UCL	25.34
95% Modified-t UCL (Johnson-1978)	15.73	99% Chebyshev (MVUE) UCL	32.84

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.699	**Data appear Normal at 5% Significance Level**
Theta Star	3.401	
MLE of Mean	12.58	
MLE of Standard Deviation	6.541	
nu star	73.98	
Approximate Chi Square Value (.05)	55.18	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 15.4
Adjusted Chi Square Value	52.36	95% Jackknife UCL 15.72
		95% Standard Bootstrap UCL 15.22
Anderson-Darling Test Statistic	0.349	95% Bootstrap-t UCL 15.72
Anderson-Darling 5% Critical Value	0.729	95% Hall's Bootstrap UCL 15.19
Kolmogorov-Smirnov Test Statistic	0.218	95% Percentile Bootstrap UCL 15.36
Kolmogorov-Smirnov 5% Critical Value	0.267	95% BCA Bootstrap UCL 15.32
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 20.05
		97.5% Chebyshev(Mean, Sd) UCL 23.29
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 29.64
95% Approximate Gamma UCL	16.87	
95% Adjusted Gamma UCL	17.77	

Potential UCL to Use	Use 95% Student's-t UCL 15.72

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.8	Minimum of Log Data	0.588
Maximum	5.8	Maximum of Log Data	1.758
Mean	4.787	Mean of log Data	1.518
Median	5.35	SD of log Data	0.364
SD	1.284		
Coefficient of Variation	0.268		
Skewness	-1.674		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.692
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.532	95% H-UCL	6.247
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.292
95% Adjusted-CLT UCL (Chen-1995)	5.225	97.5% Chebyshev (MVUE) UCL	8.353
95% Modified-t UCL (Johnson-1978)	5.496	99% Chebyshev (MVUE) UCL	10.44

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	7.434	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.644		
MLE of Mean	4.787		
MLE of Standard Deviation	1.756		
nu star	148.7		
Approximate Chi Square Value (.05)	121.5	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0267	95% CLT UCL	5.455
Adjusted Chi Square Value	117.2	95% Jackknife UCL	5.532
		95% Standard Bootstrap UCL	5.417
Anderson-Darling Test Statistic	1.192	95% Bootstrap-t UCL	5.347
Anderson-Darling 5% Critical Value	0.725	95% Hall's Bootstrap UCL	5.264
Kolmogorov-Smirnov Test Statistic	0.322	95% Percentile Bootstrap UCL	5.367
Kolmogorov-Smirnov 5% Critical Value	0.267	95% BCA Bootstrap UCL	5.234
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.557
		97.5% Chebyshev(Mean, Sd) UCL	7.323
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.828
95% Approximate Gamma UCL	5.858		
95% Adjusted Gamma UCL	6.071		

Potential UCL to Use	
Use 95% Student's-t UCL	5.532
or 95% Modified-t UCL	5.496

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	9	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	2
		Percent Non-Detects	22.22%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.049	Minimum Detected	-3.016
Maximum Detected	1.2	Maximum Detected	0.182
Mean of Detected	0.35	Mean of Detected	-1.766
SD of Detected	0.443	SD of Detected	1.288
Minimum Non-Detect	0.7	Minimum Non-Detect	-0.357
Maximum Non-Detect	1.4	Maximum Non-Detect	0.336

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.755	Shapiro Wilk Test Statistic	0.87
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.389	Mean	-1.53
SD	0.401	SD	1.222
95% DL/2 (t) UCL	0.638	95% H-Stat (DL/2) UCL	2.311
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.839
		SD in Log Scale	1.13
		Mean in Original Scale	0.3
		SD in Original Scale	0.397
		95% t UCL	0.546
		95% Percentile Bootstrap UCL	0.531
		95% BCA Bootstrap UCL	0.605
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.566	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.618		
nu star	7.929		
A-D Test Statistic	0.59	**Nonparametric Statistics**	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.734	Mean	0.32
5% K-S Critical Value	0.322	SD	0.393
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.151
		95% KM (t) UCL	0.6
Assuming Gamma Distribution		95% KM (z) UCL	0.568
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.6
Minimum	0.049	95% KM (bootstrap t) UCL	1.286
Maximum	1.2	95% KM (BCA) UCL	0.581
Mean	0.338	95% KM (Percentile Bootstrap) UCL	0.575
Median	0.212	95% KM (Chebyshev) UCL	0.976
SD	0.387	97.5% KM (Chebyshev) UCL	1.261

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	0.749	99% KM (Chebyshev) UCL	1.819
Theta star	0.451		
Nu star	13.48	**Potential UCLs to Use**	
AppChi2	6.22	95% KM (Chebyshev) UCL	0.976
95% Gamma Approximate UCL	0.732		
95% Adjusted Gamma UCL	0.873		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dimethyl phthalate

General Statistics

Number of Valid Data	9	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	8
		Percent Non-Detects	88.89%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Dimethyl phthalate was not processed!

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.089	Minimum of Log Data	-2.419
Maximum	3.8	Maximum of Log Data	1.335
Mean	0.91	Mean of log Data	-0.976
Median	0.16	SD of log Data	1.387
SD	1.297		
Coefficient of Variation	1.426		
Skewness	1.798		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.704	Shapiro Wilk Test Statistic	0.871
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.714	95% H-UCL	7.574
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.573
95% Adjusted-CLT UCL (Chen-1995)	1.898	97.5% Chebyshev (MVUE) UCL	3.325
95% Modified-t UCL (Johnson-1978)	1.757	99% Chebyshev (MVUE) UCL	4.804

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.532	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	1.71	
MLE of Mean	0.91	
MLE of Standard Deviation	1.247	
nu star	9.577	
Approximate Chi Square Value (.05)	3.679	**Nonparametric Statistics**
Adjusted Level of Significance	0.0231	95% CLT UCL 1.621
Adjusted Chi Square Value	2.95	95% Jackknife UCL 1.714
		95% Standard Bootstrap UCL 1.578
Anderson-Darling Test Statistic	0.75	95% Bootstrap-t UCL 3.731
Anderson-Darling 5% Critical Value	0.756	95% Hall's Bootstrap UCL 5.101
Kolmogorov-Smirnov Test Statistic	0.309	95% Percentile Bootstrap UCL 1.637
Kolmogorov-Smirnov 5% Critical Value	0.29	95% BCA Bootstrap UCL 1.881
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2.795
		97.5% Chebyshev(Mean, Sd) UCL 3.61
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 5.212
95% Approximate Gamma UCL	2.369	
95% Adjusted Gamma UCL	2.954	

Potential UCL to Use	Use 95% Approximate Gamma UCL 2.369

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

Iron

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	899	Minimum of Log Data	6.801
Maximum	13800	Maximum of Log Data	9.532
Mean	9962	Mean of log Data	8.996
Median	11400	SD of log Data	0.911
SD	4201		
Coefficient of Variation	0.422		
Skewness	-1.72		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.82	Shapiro Wilk Test Statistic	0.61
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12777	95% H-UCL	36844
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	27821
95% Adjusted-CLT UCL (Chen-1995)	11441	97.5% Chebyshev (MVUE) UCL	34909
95% Modified-t UCL (Johnson-1978)	12626	99% Chebyshev (MVUE) UCL	48832

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.661	**Data appear Normal at 5% Significance Level**
Theta Star	5998	
MLE of Mean	9962	
MLE of Standard Deviation	7730	
nu star	26.57	
Approximate Chi Square Value (.05)	15.82	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 12406
Adjusted Chi Square Value	13.77	95% Jackknife UCL 12777
		95% Standard Bootstrap UCL 12306
Anderson-Darling Test Statistic	1.244	95% Bootstrap-t UCL 12013
Anderson-Darling 5% Critical Value	0.723	95% Hall's Bootstrap UCL 11656
Kolmogorov-Smirnov Test Statistic	0.334	95% Percentile Bootstrap UCL 11993
Kolmogorov-Smirnov 5% Critical Value	0.297	95% BCA Bootstrap UCL 11700
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 16437
		97.5% Chebyshev(Mean, Sd) UCL 19239
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 24742
95% Approximate Gamma UCL	16732	
95% Adjusted Gamma UCL	19230	

Potential UCL to Use	Use 95% Student's-t UCL 12777

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	59.2	Minimum of Log Data	4.081
Maximum	464	Maximum of Log Data	6.14
Mean	225.3	Mean of log Data	5.264
Median	206	SD of log Data	0.628
SD	125.2		
Coefficient of Variation	0.556		
Skewness	0.828		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.96	Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	309.2	95% H-UCL	435.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	453.9
95% Adjusted-CLT UCL (Chen-1995)	312	97.5% Chebyshev (MVUE) UCL	551.2
95% Modified-t UCL (Johnson-1978)	311.3	99% Chebyshev (MVUE) UCL	742.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.221	**Data appear Normal at 5% Significance Level**
Theta Star	101.4	
MLE of Mean	225.3	
MLE of Standard Deviation	151.2	
nu star	35.53	
Approximate Chi Square Value (.05)	22.89	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 298.1
Adjusted Chi Square Value	20.36	95% Jackknife UCL 309.2
		95% Standard Bootstrap UCL 293
Anderson-Darling Test Statistic	0.148	95% Bootstrap-t UCL 334.7
Anderson-Darling 5% Critical Value	0.72	95% Hall's Bootstrap UCL 414.6
Kolmogorov-Smirnov Test Statistic	0.139	95% Percentile Bootstrap UCL 293.3
Kolmogorov-Smirnov 5% Critical Value	0.296	95% BCA Bootstrap UCL 305.1
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 418.3
		97.5% Chebyshev(Mean, Sd) UCL 501.8
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 665.8
95% Approximate Gamma UCL	349.7	
95% Adjusted Gamma UCL	393.1	

Potential UCL to Use	Use 95% Student's-t UCL 309.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	10	Number of Detected Data	6
Number of Distinct Detected Data	5	Number of Non-Detect Data	4
		Percent Non-Detects	40.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.02	Minimum Detected	0.0198
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	1.337	Mean of Detected	0.275
SD of Detected	0.261	SD of Detected	0.193
Minimum Non-Detect	1.3	Minimum Non-Detect	0.262
Maximum Non-Detect	28.8	Maximum Non-Detect	3.36

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.916	Shapiro Wilk Test Statistic	0.932
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.567	Mean	0.593
SD	5.108	SD	1.093
95% DL/2 (t) UCL	6.528	95% H-Stat (DL/2) UCL	10.94
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.236
		SD in Log Scale	0.159
		Mean in Original Scale	1.281
		SD in Original Scale	0.214
		95% t UCL	1.406
		95% Percentile Bootstrap UCL	1.398
		95% BCA Bootstrap UCL	1.409

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	16.21	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0824		
nu star	194.6		
A-D Test Statistic	0.351	**Nonparametric Statistics**	
5% A-D Critical Value	0.697	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.697	Mean	1.288
5% K-S Critical Value	0.332	SD	0.227
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0905
		95% KM (t) UCL	1.453
Assuming Gamma Distribution		95% KM (z) UCL	1.436
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.457
Minimum	1.02	95% KM (bootstrap t) UCL	1.559
Maximum	1.7	95% KM (BCA) UCL	1.422
Mean	1.354	95% KM (Percentile Bootstrap) UCL	1.433
Median	1.352	95% KM (Chebyshev) UCL	1.682
SD	0.214	97.5% KM (Chebyshev) UCL	1.853

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	31.06	99% KM (Chebyshev) UCL	2.188
Theta star	0.0436		
Nu star	621.3	**Potential UCLs to Use**	
AppChi2	564.4	95% KM (t) UCL	1.453
95% Gamma Approximate UCL	1.49	95% KM (Percentile Bootstrap) UCL	1.433
95% Adjusted Gamma UCL	1.515		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TABLE D-1h
ProUCL Output for Surface Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

Vanadium

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.5	Minimum of Log Data	2.251
Maximum	83.6	Maximum of Log Data	4.426
Mean	32.31	Mean of log Data	3.329
Median	27.3	SD of log Data	0.566
SD	20.23		
Coefficient of Variation	0.626		
Skewness	2.022		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.769	Shapiro Wilk Test Statistic	0.913
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	44.04	95% H-UCL	50.68
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	57.82
95% Adjusted-CLT UCL (Chen-1995)	47.2	97.5% Chebyshev (MVUE) UCL	68.92
95% Modified-t UCL (Johnson-1978)	44.72	99% Chebyshev (MVUE) UCL	90.71

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.571	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	12.57	
MLE of Mean	32.31	
MLE of Standard Deviation	20.15	
nu star	51.42	
Approximate Chi Square Value (.05)	35.95	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 42.83
Adjusted Chi Square Value	33.72	95% Jackknife UCL 44.04
		95% Standard Bootstrap UCL 42.04
Anderson-Darling Test Statistic	0.658	95% Bootstrap-t UCL 56.65
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 103.1
Kolmogorov-Smirnov Test Statistic	0.247	95% Percentile Bootstrap UCL 43.72
Kolmogorov-Smirnov 5% Critical Value	0.268	95% BCA Bootstrap UCL 46.43
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 60.19
		97.5% Chebyshev(Mean, Sd) UCL 72.26
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 95.96
95% Approximate Gamma UCL	46.21	
95% Adjusted Gamma UCL	49.28	

Potential UCL to Use	Use 95% Approximate Gamma UCL 46.21

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-1j
ProUCL Output for Surface Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Surface_J-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	4080	Minimum of Log Data	8.314
Maximum	14000	Maximum of Log Data	9.547
Mean	7970	Mean of log Data	8.929
Median	7730	SD of log Data	0.344
SD	2674		
Coefficient of Variation	0.336		
Skewness	0.483		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.968	Shapiro Wilk Test Statistic	0.977
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9066	95% H-UCL	9372
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10849
95% Adjusted-CLT UCL (Chen-1995)	9083	97.5% Chebyshev (MVUE) UCL	12090
95% Modified-t UCL (Johnson-1978)	9078	99% Chebyshev (MVUE) UCL	14528

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.818	**Data appear Normal at 5% Significance Level**
Theta Star	1019	
MLE of Mean	7970	
MLE of Standard Deviation	2850	
nu star	281.4	
Approximate Chi Square Value (.05)	243.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 9007
Adjusted Chi Square Value	240.2	95% Jackknife UCL 9066
		95% Standard Bootstrap UCL 8969
Anderson-Darling Test Statistic	0.178	95% Bootstrap-t UCL 9199
Anderson-Darling 5% Critical Value	0.74	95% Hall's Bootstrap UCL 9136
Kolmogorov-Smirnov Test Statistic	0.106	95% Percentile Bootstrap UCL 8975
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL 8980
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 10717
		97.5% Chebyshev(Mean, Sd) UCL 11906
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 14242
95% Approximate Gamma UCL	9209	
95% Adjusted Gamma UCL	9338	

Potential UCL to Use	Use 95% Student's-t UCL 9066

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Antimony

General Statistics

Number of Valid Data	11	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	10
		Percent Non-Detects	90.91%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Antimony was not processed!

Aroclor-1254 (PCB-1254)

General Statistics

Number of Valid Data	19	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	12
		Percent Non-Detects	63.16%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	19	Maximum Detected	2.944
Mean of Detected	2.893	Mean of Detected	-1.405
SD of Detected	7.106	SD of Detected	2.205
Minimum Non-Detect	0.0045	Minimum Non-Detect	-5.404
Maximum Non-Detect	0.048	Maximum Non-Detect	-3.037

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	6
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	68.42%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.479	Shapiro Wilk Test Statistic	0.888
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.078	Mean	-3.099
SD	4.343	SD	1.907
95% DL/2 (t) UCL	2.806	95% H-Stat (DL/2) UCL	1.743
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.718
		SD in Log Scale	2.986
		Mean in Original Scale	1.067
		SD in Original Scale	4.346
		95% t UCL	2.796
		95% Percentile Bootstrap UCL	3.044
		95% BCA Bootstrap UCL	4.116

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.257	**Data appear Lognormal at 5% Significance Level**	
Theta Star	11.28		
nu star	3.591		
A-D Test Statistic	1.044	**Nonparametric Statistics**	
5% A-D Critical Value	0.791	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.791	Mean	1.08
5% K-S Critical Value	0.336	SD	4.227
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.047
		95% KM (t) UCL	2.896
Assuming Gamma Distribution		95% KM (z) UCL	2.803
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.791
Minimum	0.022	95% KM (bootstrap t) UCL	86.34
Maximum	19	95% KM (BCA) UCL	3.203
Mean	2.46	95% KM (Percentile Bootstrap) UCL	3.079
Median	2.008	95% KM (Chebyshev) UCL	5.645
SD	4.268	97.5% KM (Chebyshev) UCL	7.621
k star	0.539	99% KM (Chebyshev) UCL	11.5
Theta star	4.565		
Nu star	20.48	**Potential UCLs to Use**	
AppChi2	11.2	99% KM (Chebyshev) UCL	11.5

95% Gamma Approximate UCL	4.496
95% Adjusted Gamma UCL	4.749

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Aroclor-1260 (PCB-1260)

General Statistics

Number of Valid Data	19	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	15
		Percent Non-Detects	78.95%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.026	Minimum Detected	-3.65
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.382	Mean of Detected	-2.33
SD of Detected	0.679	SD of Detected	1.806
Minimum Non-Detect	0.036	Minimum Non-Detect	-3.324
Maximum Non-Detect	0.051	Maximum Non-Detect	-2.976

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	89.47%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.647	Shapiro Wilk Test Statistic	0.79
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0964	Mean	-3.571
SD	0.316	SD	0.993
95% DL/2 (t) UCL	0.222	95% H-Stat (DL/2) UCL	0.0846
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.768
		SD in Log Scale	1.158
		Mean in Original Scale	0.0943
		SD in Original Scale	0.316
		95% t UCL	0.22
		95% Percentile Bootstrap UCL	0.239
		95% BCA Bootstrap UCL	0.315

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.284	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1.343		
nu star	2.272		
A-D Test Statistic	0.724	**Nonparametric Statistics**	
5% A-D Critical Value	0.684	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.684	Mean	0.101
5% K-S Critical Value	0.411	SD	0.306
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0811
		95% KM (t) UCL	0.242
Assuming Gamma Distribution		95% KM (z) UCL	0.234
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.216
Minimum	1E-12	95% KM (bootstrap t) UCL	3.57
Maximum	1.4	95% KM (BCA) UCL	1.4
Mean	0.369	95% KM (Percentile Bootstrap) UCL	0.318
Median	0.404	95% KM (Chebyshev) UCL	0.455
SD	0.298	97.5% KM (Chebyshev) UCL	0.608
k star	0.371	99% KM (Chebyshev) UCL	0.908
Theta star	0.996		
Nu star	14.08	**Potential UCLs to Use**	
AppChi2	6.629	97.5% KM (Chebyshev) UCL	0.608
95% Gamma Approximate UCL	0.784		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	18	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	3
		Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.4	Minimum Detected	0.336
Maximum Detected	10.3	Maximum Detected	2.332
Mean of Detected	4.33	Mean of Detected	1.338
SD of Detected	2.284	SD of Detected	0.533
Minimum Non-Detect	0.96	Minimum Non-Detect	-0.0408
Maximum Non-Detect	1.3	Maximum Non-Detect	0.262

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	3
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	15
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	16.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.906	Shapiro Wilk Test Statistic	0.973
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.704	Mean	1.022
SD	2.523	SD	0.875
95% DL/2 (t) UCL	4.739	95% H-Stat (DL/2) UCL	6.868
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.577	Mean in Log Scale	1.135
SD	2.674	SD in Log Scale	0.672
95% MLE (t) UCL	4.674	Mean in Original Scale	3.797
95% MLE (Tiku) UCL	4.685	SD in Original Scale	2.409
		95% t UCL	4.784
		95% Percentile Bootstrap UCL	4.686
		95% BCA Bootstrap UCL	4.902

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	3.304	**Data appear Normal at 5% Significance Level**	
Theta Star	1.31		
nu star	99.13		
A-D Test Statistic	0.24	**Nonparametric Statistics**	
5% A-D Critical Value	0.74	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.74	Mean	3.842
5% K-S Critical Value	0.223	SD	2.291
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.559
		95% KM (t) UCL	4.814
Assuming Gamma Distribution		95% KM (z) UCL	4.761
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.784
Minimum	1.155	95% KM (bootstrap t) UCL	5.017
Maximum	10.3	95% KM (BCA) UCL	4.972
Mean	3.801	95% KM (Percentile Bootstrap) UCL	4.806
Median	3.25	95% KM (Chebyshev) UCL	6.278
SD	2.403	97.5% KM (Chebyshev) UCL	7.332
k star	2.289	99% KM (Chebyshev) UCL	9.403
Theta star	1.66		
Nu star	82.41	**Potential UCLs to Use**	
AppChi2	62.49	95% KM (t) UCL	4.814
95% Gamma Approximate UCL	5.013	95% KM (Percentile Bootstrap) UCL	4.806
95% Adjusted Gamma UCL	5.15		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	19	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	2
		Percent Non-Detects	10.53%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.03	Minimum Detected	-3.507
Maximum Detected	6.2	Maximum Detected	1.825
Mean of Detected	0.879	Mean of Detected	-1.211
SD of Detected	1.48	SD of Detected	1.628
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	8
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	57.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.581	Shapiro Wilk Test Statistic	0.941
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.806	Mean	-1.257
SD	1.412	SD	1.541
95% DL/2 (t) UCL	1.368	95% H-Stat (DL/2) UCL	3.276
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.328
		SD in Log Scale	1.575
		Mean in Original Scale	0.797
		SD in Original Scale	1.417
		95% t UCL	1.36
		95% Percentile Bootstrap UCL	1.386
		95% BCA Bootstrap UCL	1.732

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.513	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.714		
nu star	17.43		
A-D Test Statistic	0.495	**Nonparametric Statistics**	
5% A-D Critical Value	0.791	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.791	Mean	0.799
5% K-S Critical Value	0.22	SD	1.378
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.326
		95% KM (t) UCL	1.364
Assuming Gamma Distribution		95% KM (z) UCL	1.335
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.363
Minimum	0.03	95% KM (bootstrap t) UCL	2.101
Maximum	6.2	95% KM (BCA) UCL	1.391
Mean	0.792	95% KM (Percentile Bootstrap) UCL	1.401
Median	0.31	95% KM (Chebyshev) UCL	2.22
SD	1.42	97.5% KM (Chebyshev) UCL	2.835
k star	0.49	99% KM (Chebyshev) UCL	4.044
Theta star	1.616		
Nu star	18.62	**Potential UCLs to Use**	
AppChi2	9.841	95% KM (Chebyshev) UCL	2.22
95% Gamma Approximate UCL	1.498		
95% Adjusted Gamma UCL	1.587		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	19	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	2
		Percent Non-Detects	10.53%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.021	Minimum Detected	-3.863
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	0.695	Mean of Detected	-1.281
SD of Detected	0.967	SD of Detected	1.554
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	9
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	52.63%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.695	Shapiro Wilk Test Statistic	0.959
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.642	Mean	-1.32
SD	0.925	SD	1.469
95% DL/2 (t) UCL	1.01	95% H-Stat (DL/2) UCL	2.497
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.144	Mean in Log Scale	-1.41
SD	1.4	SD in Log Scale	1.515
95% MLE (t) UCL	0.701	Mean in Original Scale	0.63
95% MLE (Tiku) UCL	0.859	SD in Original Scale	0.932
		95% t UCL	1.001
		95% Percentile Bootstrap UCL	1.005
		95% BCA Bootstrap UCL	1.169

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.586	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.185		
nu star	19.92		
A-D Test Statistic	0.272	**Nonparametric Statistics**	
5% A-D Critical Value	0.784	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.784	Mean	0.633
5% K-S Critical Value	0.219	SD	0.906
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.214
		95% KM (t) UCL	1.005
Assuming Gamma Distribution		95% KM (z) UCL	0.986
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.004
Minimum	0.021	95% KM (bootstrap t) UCL	1.328
Maximum	3.9	95% KM (BCA) UCL	1.026
Mean	0.628	95% KM (Percentile Bootstrap) UCL	1.014
Median	0.34	95% KM (Chebyshev) UCL	1.568
SD	0.934	97.5% KM (Chebyshev) UCL	1.972
k star	0.562	99% KM (Chebyshev) UCL	2.767
Theta star	1.117		
Nu star	21.34	**Potential UCLs to Use**	
AppChi2	11.85	95% KM (Chebyshev) UCL	1.568
95% Gamma Approximate UCL	1.131		
95% Adjusted Gamma UCL	1.193		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	19	Number of Detected Data	17
Number of Distinct Detected Data	16	Number of Non-Detect Data	2
		Percent Non-Detects	10.53%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.029	Minimum Detected	-3.54
Maximum Detected	3.7	Maximum Detected	1.308
Mean of Detected	0.905	Mean of Detected	-0.966
SD of Detected	1.038	SD of Detected	1.551
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	10
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	47.37%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.817	Shapiro Wilk Test Statistic	0.937
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.83	Mean	-1.038
SD	1.004	SD	1.478
95% DL/2 (t) UCL	1.229	95% H-Stat (DL/2) UCL	3.395
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.421	Mean in Log Scale	-1.111
SD	1.441	SD in Log Scale	1.526
95% MLE (t) UCL	0.994	Mean in Original Scale	0.82
95% MLE (Tiku) UCL	1.108	SD in Original Scale	1.011
		95% t UCL	1.222
		95% Percentile Bootstrap UCL	1.2
		95% BCA Bootstrap UCL	1.314

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.614	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.474		
nu star	20.88		
A-D Test Statistic	0.375	**Nonparametric Statistics**	
5% A-D Critical Value	0.781	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.781	Mean	0.819
5% K-S Critical Value	0.218	SD	0.984
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.233
		95% KM (t) UCL	1.223
Assuming Gamma Distribution		95% KM (z) UCL	1.202
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.222
Minimum	0.029	95% KM (bootstrap t) UCL	1.359
Maximum	3.7	95% KM (BCA) UCL	1.249
Mean	0.817	95% KM (Percentile Bootstrap) UCL	1.214
Median	0.4	95% KM (Chebyshev) UCL	1.834
SD	1.013	97.5% KM (Chebyshev) UCL	2.274
k star	0.584	99% KM (Chebyshev) UCL	3.136
Theta star	1.4		
Nu star	22.19	**Potential UCLs to Use**	
AppChi2	12.48	95% KM (Chebyshev) UCL	1.834
95% Gamma Approximate UCL	1.453		
95% Adjusted Gamma UCL	1.531		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	19	Number of Detected Data	16
Number of Distinct Detected Data	14	Number of Non-Detect Data	3
		Percent Non-Detects	15.79%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.032	Minimum Detected	-3.442
Maximum Detected	3	Maximum Detected	1.099
Mean of Detected	0.68	Mean of Detected	-1.142
SD of Detected	0.826	SD of Detected	1.355
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	7
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	63.16%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.765	Shapiro Wilk Test Statistic	0.96
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.603	Mean	-1.224
SD	0.776	SD	1.252
95% DL/2 (t) UCL	0.912	95% H-Stat (DL/2) UCL	1.554
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.278
		SD in Log Scale	1.278
		Mean in Original Scale	0.594
		SD in Original Scale	0.781
		95% t UCL	0.905
		95% Percentile Bootstrap UCL	0.896
		95% BCA Bootstrap UCL	1.017

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.68	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1		
nu star	21.77		
A-D Test Statistic	0.489	**Nonparametric Statistics**	
5% A-D Critical Value	0.773	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.773	Mean	0.597
5% K-S Critical Value	0.223	SD	0.76
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.18
		95% KM (t) UCL	0.91
Assuming Gamma Distribution		95% KM (z) UCL	0.893
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.908
Minimum	0.032	95% KM (bootstrap t) UCL	1.052
Maximum	3	95% KM (BCA) UCL	0.912
Mean	0.621	95% KM (Percentile Bootstrap) UCL	0.92
Median	0.307	95% KM (Chebyshev) UCL	1.383
SD	0.767	97.5% KM (Chebyshev) UCL	1.723
k star	0.77	99% KM (Chebyshev) UCL	2.391
Theta star	0.807		
Nu star	29.26	**Potential UCLs to Use**	
AppChi2	17.91	95% KM (Chebyshev) UCL	1.383
95% Gamma Approximate UCL	1.015		
95% Adjusted Gamma UCL	1.061		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	18	Number of Detected Data	12
Number of Distinct Detected Data	12	Number of Non-Detect Data	6
		Percent Non-Detects	33.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.16	Minimum Detected	-1.833
Maximum Detected	12.8	Maximum Detected	2.549
Mean of Detected	2.918	Mean of Detected	0.276
SD of Detected	3.866	SD of Detected	1.405
Minimum Non-Detect	0.09	Minimum Non-Detect	-2.408
Maximum Non-Detect	3.8	Maximum Non-Detect	1.335

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	88.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.721	Shapiro Wilk Test Statistic	0.961
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.068	Mean	-0.579
SD	3.372	SD	1.861
95% DL/2 (t) UCL	3.45	95% H-Stat (DL/2) UCL	19.84
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.644
		SD in Log Scale	1.808
		Mean in Original Scale	1.985
		SD in Original Scale	3.394
		95% t UCL	3.377
		95% Percentile Bootstrap UCL	3.439
		95% BCA Bootstrap UCL	3.795

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.62	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	4.708		
nu star	14.88		
A-D Test Statistic	0.314	**Nonparametric Statistics**	
5% A-D Critical Value	0.766	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.766	Mean	2.044
5% K-S Critical Value	0.255	SD	3.28
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.81
		95% KM (t) UCL	3.453
Assuming Gamma Distribution		95% KM (z) UCL	3.376
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.429
Minimum	1E-12	95% KM (bootstrap t) UCL	5.825
Maximum	12.8	95% KM (BCA) UCL	3.488
Mean	2.179	95% KM (Percentile Bootstrap) UCL	3.494
Median	0.74	95% KM (Chebyshev) UCL	5.575
SD	3.392	97.5% KM (Chebyshev) UCL	7.102
k star	0.158	99% KM (Chebyshev) UCL	10.1
Theta star	13.8		
Nu star	5.684	**Potential UCLs to Use**	
AppChi2	1.481	95% KM (BCA) UCL	3.488
95% Gamma Approximate UCL	8.367		
95% Adjusted Gamma UCL	9.633		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	19	Number of Detected Data	10
Number of Distinct Detected Data	9	Number of Non-Detect Data	9
		Percent Non-Detects	47.37%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.0205	Minimum Detected	-3.887
Maximum Detected	2	Maximum Detected	0.693
Mean of Detected	0.309	Mean of Detected	-2.232
SD of Detected	0.603	SD of Detected	1.428
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.51	Maximum Non-Detect	-0.673

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	94.74%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.513	Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.26	Mean	-1.93
SD	0.43	SD	1.065
95% DL/2 (t) UCL	0.431	95% H-Stat (DL/2) UCL	0.504
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.358
		SD in Log Scale	1.065
		Mean in Original Scale	0.206
		SD in Original Scale	0.442
		95% t UCL	0.381
		95% Percentile Bootstrap UCL	0.395
		95% BCA Bootstrap UCL	0.504

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.477	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	0.648		
nu star	9.539		
A-D Test Statistic	0.785	**Nonparametric Statistics**	
5% A-D Critical Value	0.77	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.77	Mean	0.22
5% K-S Critical Value	0.279	SD	0.432
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.107
		95% KM (t) UCL	0.406
Assuming Gamma Distribution		95% KM (z) UCL	0.397
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.403
Minimum	0.0205	95% KM (bootstrap t) UCL	0.726
Maximum	2	95% KM (BCA) UCL	0.445
Mean	0.305	95% KM (Percentile Bootstrap) UCL	0.411
Median	0.29	95% KM (Chebyshev) UCL	0.687
SD	0.427	97.5% KM (Chebyshev) UCL	0.89
k star	0.903	99% KM (Chebyshev) UCL	1.287
Theta star	0.338		
Nu star	34.31	**Potential UCLs to Use**	
AppChi2	21.91	95% KM (BCA) UCL	0.445
95% Gamma Approximate UCL	0.477		
95% Adjusted Gamma UCL	0.497		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	7	Minimum of Log Data	1.946
Maximum	19200	Maximum of Log Data	9.863
Mean	1782	Mean of log Data	3.73
Median	16.23	SD of log Data	2.354
SD	5185		
Coefficient of Variation	2.909		
Skewness	2.983		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.396	Shapiro Wilk Test Statistic	0.661
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3908	95% H-UCL	11336
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1687
95% Adjusted-CLT UCL (Chen-1995)	4710	97.5% Chebyshev (MVUE) UCL	2229
95% Modified-t UCL (Johnson-1978)	4051	99% Chebyshev (MVUE) UCL	3295

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.201	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	8876	
MLE of Mean	1782	
MLE of Standard Deviation	3977	
nu star	7.228	
Approximate Chi Square Value (.05)	2.297	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 3792
Adjusted Chi Square Value	2.039	95% Jackknife UCL 3908
		95% Standard Bootstrap UCL 3746
Anderson-Darling Test Statistic	4.104	95% Bootstrap-t UCL 73008
Anderson-Darling 5% Critical Value	0.886	95% Hall's Bootstrap UCL 91908
Kolmogorov-Smirnov Test Statistic	0.461	95% Percentile Bootstrap UCL 3887
Kolmogorov-Smirnov 5% Critical Value	0.225	95% BCA Bootstrap UCL 4641
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7109
		97.5% Chebyshev(Mean, Sd) UCL 9414
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 13941
95% Approximate Gamma UCL	5609	
95% Adjusted Gamma UCL	6318	

Potential UCL to Use	Use 99% Chebyshev (Mean, Sd) UCL 13941

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	17

Raw Statistics		**Log-transformed Statistics**	
Minimum	3.4	Minimum of Log Data	1.224
Maximum	10.3	Maximum of Log Data	2.332
Mean	5.625	Mean of log Data	1.68
Median	5.15	SD of log Data	0.306
SD	1.903		
Coefficient of Variation	0.338		
Skewness	1.308		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.405	95% H-UCL	6.456
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.397
95% Adjusted-CLT UCL (Chen-1995)	6.51	97.5% Chebyshev (MVUE) UCL	8.171
95% Modified-t UCL (Johnson-1978)	6.428	99% Chebyshev (MVUE) UCL	9.691

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	9.037	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.622	
MLE of Mean	5.625	
MLE of Standard Deviation	1.871	
nu star	325.3	
Approximate Chi Square Value (.05)	284.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 6.363
Adjusted Chi Square Value	280.9	95% Jackknife UCL 6.405
		95% Standard Bootstrap UCL 6.328
Anderson-Darling Test Statistic	0.543	95% Bootstrap-t UCL 6.732
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL 6.684
Kolmogorov-Smirnov Test Statistic	0.142	95% Percentile Bootstrap UCL 6.369
Kolmogorov-Smirnov 5% Critical Value	0.203	95% BCA Bootstrap UCL 6.486
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.58
		97.5% Chebyshev(Mean, Sd) UCL 8.426
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 10.09
95% Approximate Gamma UCL	6.431	
95% Adjusted Gamma UCL	6.515	

Potential UCL to Use	Use 95% Approximate Gamma UCL 6.431

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	19	Number of Detected Data	14
Number of Distinct Detected Data	13	Number of Non-Detect Data	5
		Percent Non-Detects	26.32%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	1.2	Maximum Detected	0.182
Mean of Detected	0.235	Mean of Detected	-2.104
SD of Detected	0.314	SD of Detected	1.2
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	89.47%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.677	Shapiro Wilk Test Statistic	0.954
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.225	Mean	-1.982
SD	0.267	SD	1.042
95% DL/2 (t) UCL	0.331	95% H-Stat (DL/2) UCL	0.457
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.176
		SD in Log Scale	1.04
		Mean in Original Scale	0.199
		SD in Original Scale	0.274
		95% t UCL	0.308
		95% Percentile Bootstrap UCL	0.318
		95% BCA Bootstrap UCL	0.355

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.747	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.315		
nu star	20.92		
A-D Test Statistic	0.475	**Nonparametric Statistics**	
5% A-D Critical Value	0.765	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.765	Mean	0.208
5% K-S Critical Value	0.236	SD	0.269
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.066
		95% KM (t) UCL	0.322
Assuming Gamma Distribution		95% KM (z) UCL	0.317
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.322
Minimum	0.022	95% KM (bootstrap t) UCL	0.424
Maximum	1.2	95% KM (BCA) UCL	0.326
Mean	0.234	95% KM (Percentile Bootstrap) UCL	0.326
Median	0.173	95% KM (Chebyshev) UCL	0.496
SD	0.267	97.5% KM (Chebyshev) UCL	0.62
k star	1.014	99% KM (Chebyshev) UCL	0.865
Theta star	0.23		
Nu star	38.54	**Potential UCLs to Use**	
AppChi2	25.32	95% KM (Chebyshev) UCL	0.496
95% Gamma Approximate UCL	0.356		
95% Adjusted Gamma UCL	0.369		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dimethyl phthalate

General Statistics

Number of Valid Data	19	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	17
		Percent Non-Detects	89.47%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.032	Minimum Detected	-3.442
Maximum Detected	0.14	Maximum Detected	-1.966
Mean of Detected	0.086	Mean of Detected	-2.704
SD of Detected	0.0764	SD of Detected	1.044
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.51	Maximum Non-Detect	-0.673

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.19	Mean	-1.719
SD	0.0457	SD	0.436
95% DL/2 (t) UCL	0.208	95% H-Stat (DL/2) UCL	0.241
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.086
5% K-S Critical Value	N/A	SD	0.054
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.054
		95% KM (t) UCL	0.18
Assuming Gamma Distribution		95% KM (z) UCL	0.175
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.215
Minimum	N/A	95% KM (bootstrap t) UCL	0.194
Maximum	N/A	95% KM (BCA) UCL	0.14
Mean	N/A	95% KM (Percentile Bootstrap) UCL	0.14

TABLE D-1j
ProUCL Output for Surface Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

Median	N/A	95% KM (Chebyshev) UCL	0.321
SD	N/A	97.5% KM (Chebyshev) UCL	0.423
k star	N/A	99% KM (Chebyshev) UCL	0.623
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (BCA) UCL	0.14
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	19	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	13
		Percent Non-Detects	68.42%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.03	Minimum Detected	-3.507
Maximum Detected	0.69	Maximum Detected	-0.371
Mean of Detected	0.18	Mean of Detected	-2.328
SD of Detected	0.253	SD of Detected	1.134
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.51	Maximum Non-Detect	-0.673

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	94.74%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.65	Shapiro Wilk Test Statistic	0.92
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.194	Mean	-1.836
SD	0.135	SD	0.694
95% DL/2 (t) UCL	0.248	95% H-Stat (DL/2) UCL	0.291
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.569
		SD in Log Scale	0.719
		Mean in Original Scale	0.108
		SD in Original Scale	0.145
		95% t UCL	0.166
		95% Percentile Bootstrap UCL	0.172
		95% BCA Bootstrap UCL	0.205

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.584	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.308		
nu star	7.013		
A-D Test Statistic	0.534	**Nonparametric Statistics**	
5% A-D Critical Value	0.716	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.716	Mean	0.11
5% K-S Critical Value	0.341	SD	0.143
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0395
		95% KM (t) UCL	0.179
Assuming Gamma Distribution		95% KM (z) UCL	0.175
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.178
Minimum	0.03	95% KM (bootstrap t) UCL	0.246
Maximum	0.69	95% KM (BCA) UCL	0.184
Mean	0.179	95% KM (Percentile Bootstrap) UCL	0.18
Median	0.182	95% KM (Chebyshev) UCL	0.283
SD	0.135	97.5% KM (Chebyshev) UCL	0.357
k star	2.271	99% KM (Chebyshev) UCL	0.504
Theta star	0.079		
Nu star	86.29	**Potential UCLs to Use**	
AppChi2	65.87	95% KM (t) UCL	0.179
95% Gamma Approximate UCL	0.235		
95% Adjusted Gamma UCL	0.241		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	19	Number of Detected Data	17
Number of Distinct Detected Data	17	Number of Non-Detect Data	2
		Percent Non-Detects	10.53%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	2.6	Maximum Detected	0.956
Mean of Detected	0.503	Mean of Detected	-1.498
SD of Detected	0.655	SD of Detected	1.433
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	68.42%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.724	Shapiro Wilk Test Statistic	0.948
5% Shapiro Wilk Critical Value	0.892	5% Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.471	Mean	-1.514
SD	0.625	SD	1.352
95% DL/2 (t) UCL	0.719	95% H-Stat (DL/2) UCL	1.493
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.574
		SD in Log Scale	1.37
		Mean in Original Scale	0.462
		SD in Original Scale	0.63
		95% t UCL	0.712
		95% Percentile Bootstrap UCL	0.708
		95% BCA Bootstrap UCL	0.815

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.648	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.777		
nu star	22.02		
A-D Test Statistic	0.385	**Nonparametric Statistics**	
5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.777	Mean	0.467
5% K-S Critical Value	0.217	SD	0.612
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.145
		95% KM (t) UCL	0.719
Assuming Gamma Distribution		95% KM (z) UCL	0.706
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.718
Minimum	0.022	95% KM (bootstrap t) UCL	0.912
Maximum	2.6	95% KM (BCA) UCL	0.723
Mean	0.473	95% KM (Percentile Bootstrap) UCL	0.734
Median	0.25	95% KM (Chebyshev) UCL	1.1
SD	0.624	97.5% KM (Chebyshev) UCL	1.373
k star	0.699	99% KM (Chebyshev) UCL	1.911
Theta star	0.676		
Nu star	26.58	**Potential UCLs to Use**	
AppChi2	15.82	95% KM (Chebyshev) UCL	1.1
95% Gamma Approximate UCL	0.794		
95% Adjusted Gamma UCL	0.832		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	16	Number of Distinct Observations	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	7090	Minimum of Log Data	8.866
Maximum	18300	Maximum of Log Data	9.815
Mean	11708	Mean of log Data	9.332
Median	11525	SD of log Data	0.28
SD	3246		
Coefficient of Variation	0.277		
Skewness	0.408		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.964
Shapiro Wilk Critical Value	0.887	Shapiro Wilk Critical Value	0.887
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13130	95% H-UCL	13424
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15318
95% Adjusted-CLT UCL (Chen-1995)	13131	97.5% Chebyshev (MVUE) UCL	16878
95% Modified-t UCL (Johnson-1978)	13144	99% Chebyshev (MVUE) UCL	19944

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	11.36	**Data appear Normal at 5% Significance Level**
Theta Star	1030	
MLE of Mean	11708	
MLE of Standard Deviation	3473	
nu star	363.7	
Approximate Chi Square Value (.05)	320.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0335	95% CLT UCL 13042
Adjusted Chi Square Value	315.9	95% Jackknife UCL 13130
		95% Standard Bootstrap UCL 12996
Anderson-Darling Test Statistic	0.264	95% Bootstrap-t UCL 13215
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL 13172
Kolmogorov-Smirnov Test Statistic	0.151	95% Percentile Bootstrap UCL 13027
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL 13014
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15245
		97.5% Chebyshev(Mean, Sd) UCL 16775
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 19781
95% Approximate Gamma UCL	13285	
95% Adjusted Gamma UCL	13480	

Potential UCL to Use	Use 95% Student's-t UCL 13130

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Data	18	Number of Detected Data	15
Number of Distinct Detected Data	15	Number of Non-Detect Data	3
		Percent Non-Detects	16.67%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	7.9	Minimum Detected	2.067
Maximum Detected	683.5	Maximum Detected	6.527
Mean of Detected	203.8	Mean of Detected	4.456
SD of Detected	244.2	SD of Detected	1.488
Minimum Non-Detect	8.2	Minimum Non-Detect	2.104
Maximum Non-Detect	13.3	Maximum Non-Detect	2.588

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	12
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	33.33%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.751	Shapiro Wilk Test Statistic	0.938
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	170.8	Mean	4.002
SD	234.3	SD	1.709
95% DL/2 (t) UCL	266.8	95% H-Stat (DL/2) UCL	1137
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	100.6	Mean in Log Scale	4.051
SD	306.8	SD in Log Scale	1.652
95% MLE (t) UCL	226.4	Mean in Original Scale	171.2
95% MLE (Tiku) UCL	235.4	SD in Original Scale	234
		95% t UCL	267.2
		95% Percentile Bootstrap UCL	266.4
		95% BCA Bootstrap UCL	270.6

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.606	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	336.3		
nu star	18.18		
A-D Test Statistic	0.558	**Nonparametric Statistics**	
5% A-D Critical Value	0.779	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.779	Mean	171.4
5% K-S Critical Value	0.231	SD	227.3
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	55.45
		95% KM (t) UCL	267.8
Assuming Gamma Distribution		95% KM (z) UCL	262.6
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	267
Minimum	1E-12	95% KM (bootstrap t) UCL	321.8
Maximum	683.5	95% KM (BCA) UCL	270.2
Mean	170.2	95% KM (Percentile Bootstrap) UCL	263
Median	57.45	95% KM (Chebyshev) UCL	413.1
SD	234.7	97.5% KM (Chebyshev) UCL	517.6
k star	0.18	99% KM (Chebyshev) UCL	723.1
Theta star	944		
Nu star	6.492	**Potential UCLs to Use**	
AppChi2	1.896	95% KM (Chebyshev) UCL	413.1
95% Gamma Approximate UCL	582.8		
95% Adjusted Gamma UCL	662.6		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	16	Number of Distinct Observations	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	117	Minimum of Log Data	4.762
Maximum	353	Maximum of Log Data	5.866
Mean	257.3	Mean of log Data	5.515
Median	271.5	SD of log Data	0.291
SD	64.1		
Coefficient of Variation	0.249		
Skewness	-0.706		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.885
Shapiro Wilk Critical Value	0.887	Shapiro Wilk Critical Value	0.887
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	285.4	95% H-UCL	297.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	341.1
95% Adjusted-CLT UCL (Chen-1995)	280.6	97.5% Chebyshev (MVUE) UCL	376.9
95% Modified-t UCL (Johnson-1978)	284.9	99% Chebyshev (MVUE) UCL	447.2

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.64	**Data appear Normal at 5% Significance Level**	
Theta Star	22.1		
MLE of Mean	257.3		
MLE of Standard Deviation	75.41		
nu star	372.6		
Approximate Chi Square Value (.05)	328.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0335	95% CLT UCL	283.7
Adjusted Chi Square Value	324.2	95% Jackknife UCL	285.4
		95% Standard Bootstrap UCL	283.2
Anderson-Darling Test Statistic	0.592	95% Bootstrap-t UCL	281.3
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL	281.7
Kolmogorov-Smirnov Test Statistic	0.207	95% Percentile Bootstrap UCL	282.3
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	280.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	327.2
		97.5% Chebyshev(Mean, Sd) UCL	357.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	416.8
95% Approximate Gamma UCL	291.5		
95% Adjusted Gamma UCL	295.7		

Potential UCL to Use			
		Use 95% Student's-t UCL	285.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	18	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	14
		Percent Non-Detects	77.78%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.068	Minimum Detected	-2.688
Maximum Detected	0.59	Maximum Detected	-0.528
Mean of Detected	0.236	Mean of Detected	-1.853
SD of Detected	0.246	SD of Detected	1.033
Minimum Non-Detect	0.06	Minimum Non-Detect	-2.813
Maximum Non-Detect	0.99	Maximum Non-Detect	-0.0101

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.808	Shapiro Wilk Test Statistic	0.874
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.147	Mean	-2.351
SD	0.16	SD	0.912
95% DL/2 (t) UCL	0.213	95% H-Stat (DL/2) UCL	0.252
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.335
		SD in Log Scale	1
		Mean in Original Scale	0.0718
		SD in Original Scale	0.137
		95% t UCL	0.128
		95% Percentile Bootstrap UCL	0.134
		95% BCA Bootstrap UCL	0.17

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.509	**Data appear Normal at 5% Significance Level**	
Theta Star	0.463		
nu star	4.069		
A-D Test Statistic	0.426	**Nonparametric Statistics**	
5% A-D Critical Value	0.663	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.663	Mean	0.111
5% K-S Critical Value	0.4	SD	0.126
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0359
		95% KM (t) UCL	0.173
Assuming Gamma Distribution		95% KM (z) UCL	0.17
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.166
Minimum	0.0309	95% KM (bootstrap t) UCL	0.218
Maximum	0.59	95% KM (BCA) UCL	N/A
Mean	0.258	95% KM (Percentile Bootstrap) UCL	0.262
Median	0.277	95% KM (Chebyshev) UCL	0.267
SD	0.131	97.5% KM (Chebyshev) UCL	0.335
k star	2.362	99% KM (Chebyshev) UCL	0.468
Theta star	0.109		
Nu star	85.05	**Potential UCLs to Use**	
AppChi2	64.79	95% KM (t) UCL	0.173
95% Gamma Approximate UCL	0.338	95% KM (Percentile Bootstrap) UCL	0.262
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Nickel

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	9	Minimum of Log Data	2.197
Maximum	2460	Maximum of Log Data	7.808
Mean	304.4	Mean of log Data	3.852
Median	22.6	SD of log Data	1.827
SD	678.6		
Coefficient of Variation	2.229		
Skewness	2.628		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.505	Shapiro Wilk Test Statistic	0.826
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	582.7	95% H-UCL	1475
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	664.1
95% Adjusted-CLT UCL (Chen-1995)	673.4	97.5% Chebyshev (MVUE) UCL	863
95% Modified-t UCL (Johnson-1978)	599.2	99% Chebyshev (MVUE) UCL	1254

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.336	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	905.8	
MLE of Mean	304.4	
MLE of Standard Deviation	525.1	
nu star	12.1	
Approximate Chi Square Value (.05)	5.293	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 567.5
Adjusted Chi Square Value	4.866	95% Jackknife UCL 582.7
		95% Standard Bootstrap UCL 564.4
Anderson-Darling Test Statistic	2.197	95% Bootstrap-t UCL 1202
Anderson-Darling 5% Critical Value	0.83	95% Hall's Bootstrap UCL 1178
Kolmogorov-Smirnov Test Statistic	0.297	95% Percentile Bootstrap UCL 586.2
Kolmogorov-Smirnov 5% Critical Value	0.219	95% BCA Bootstrap UCL 702.7
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1002
		97.5% Chebyshev(Mean, Sd) UCL 1303
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1896
95% Approximate Gamma UCL	696	
95% Adjusted Gamma UCL	757	

Potential UCL to Use	Use 99% Chebyshev (Mean, Sd) UCL 1896

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	18	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	15
		Percent Non-Detects	83.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.84	Minimum Detected	-0.174
Maximum Detected	1.75	Maximum Detected	0.56
Mean of Detected	1.263	Mean of Detected	0.189
SD of Detected	0.458	SD of Detected	0.367
Minimum Non-Detect	0.724	Minimum Non-Detect	-0.323
Maximum Non-Detect	32.6	Maximum Non-Detect	3.484

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.986	Shapiro Wilk Test Statistic	1
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.359	Mean	-0.0119
SD	4.697	SD	1.054
95% DL/2 (t) UCL	4.285	95% H-Stat (DL/2) UCL	3.449
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.299
		SD in Log Scale	0.33
		Mean in Original Scale	0.785
		SD in Original Scale	0.307
		95% t UCL	0.911
		95% Percentile Bootstrap UCL	0.908
		95% BCA Bootstrap UCL	0.954

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.964
5% K-S Critical Value	N/A	SD	0.246
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0966
		95% KM (t) UCL	1.132
Assuming Gamma Distribution		95% KM (z) UCL	1.123
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.201
Minimum	N/A	95% KM (bootstrap t) UCL	1.066
Maximum	N/A	95% KM (BCA) UCL	1.75
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1.75
Median	N/A	95% KM (Chebyshev) UCL	1.385
SD	N/A	97.5% KM (Chebyshev) UCL	1.567
k star	N/A	99% KM (Chebyshev) UCL	1.925
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.132
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	1.75
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	12.4	Minimum of Log Data	2.518
Maximum	474	Maximum of Log Data	6.161
Mean	101.3	Mean of log Data	3.936
Median	38.9	SD of log Data	1.115
SD	143.9		
Coefficient of Variation	1.421		
Skewness	2.148		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.623	Shapiro Wilk Test Statistic	0.901
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	160.3	95% H-UCL	203.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	207.6
95% Adjusted-CLT UCL (Chen-1995)	175.4	97.5% Chebyshev (MVUE) UCL	258.2
95% Modified-t UCL (Johnson-1978)	163.2	99% Chebyshev (MVUE) UCL	357.6

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.755	**Data appear Lognormal at 5% Significance Level**
Theta Star	134.1	
MLE of Mean	101.3	
MLE of Standard Deviation	116.5	
nu star	27.19	
Approximate Chi Square Value (.05)	16.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 157.1
Adjusted Chi Square Value	15.49	95% Jackknife UCL 160.3
		95% Standard Bootstrap UCL 154.3
Anderson-Darling Test Statistic	1.331	95% Bootstrap-t UCL 224.7
Anderson-Darling 5% Critical Value	0.773	95% Hall's Bootstrap UCL 214.4
Kolmogorov-Smirnov Test Statistic	0.215	95% Percentile Bootstrap UCL 158.4
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL 174.3
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 249.1
		97.5% Chebyshev(Mean, Sd) UCL 313.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 438.8
95% Approximate Gamma UCL	169	
95% Adjusted Gamma UCL	177.8	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 249.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	19.3	Minimum of Log Data	2.96
Maximum	18400	Maximum of Log Data	9.82
Mean	2240	Mean of log Data	5.628
Median	203.5	SD of log Data	2.103
SD	5157		
Coefficient of Variation	2.302		
Skewness	2.725		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.485	Shapiro Wilk Test Statistic	0.932
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4354	95% H-UCL	25252
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6732
95% Adjusted-CLT UCL (Chen-1995)	5073	97.5% Chebyshev (MVUE) UCL	8835
95% Modified-t UCL (Johnson-1978)	4484	99% Chebyshev (MVUE) UCL	12968

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.309	**Data appear Lognormal at 5% Significance Level**
Theta Star	7253	
MLE of Mean	2240	
MLE of Standard Deviation	4031	
nu star	11.12	
Approximate Chi Square Value (.05)	4.651	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 4239
Adjusted Chi Square Value	4.256	95% Jackknife UCL 4354
		95% Standard Bootstrap UCL 4198
Anderson-Darling Test Statistic	1.392	95% Bootstrap-t UCL 14603
Anderson-Darling 5% Critical Value	0.837	95% Hall's Bootstrap UCL 14139
Kolmogorov-Smirnov Test Statistic	0.224	95% Percentile Bootstrap UCL 4353
Kolmogorov-Smirnov 5% Critical Value	0.22	95% BCA Bootstrap UCL 5077
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7538
		97.5% Chebyshev(Mean, Sd) UCL 9831
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 14334
95% Approximate Gamma UCL	5353	
95% Adjusted Gamma UCL	5850	

Potential UCL to Use	Use 99% Chebyshev (Mean, Sd) UCL 14334

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2d1
ProUCL Output for Aggregate Soil- Area D1
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	WorkSheet.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	3920	Minimum of Log Data	8.274
Maximum	17100	Maximum of Log Data	9.747
Mean	8928	Mean of log Data	9.056
Median	8290	SD of log Data	0.296
SD	2683		
Coefficient of Variation	0.3		
Skewness	1.304		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.876	Shapiro Wilk Test Statistic	0.919
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9996	95% H-UCL	10186
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11617
95% Adjusted-CLT UCL (Chen-1995)	10137	97.5% Chebyshev (MVUE) UCL	12777
95% Modified-t UCL (Johnson-1978)	10026	99% Chebyshev (MVUE) UCL	15057

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	10.48	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	851.6	
MLE of Mean	8928	
MLE of Standard Deviation	2757	
nu star	398.4	
Approximate Chi Square Value (.05)	353.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 9941
Adjusted Chi Square Value	349.4	95% Jackknife UCL 9996
		95% Standard Bootstrap UCL 9915
Anderson-Darling Test Statistic	0.566	95% Bootstrap-t UCL 10218
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL 10917
Kolmogorov-Smirnov Test Statistic	0.155	95% Percentile Bootstrap UCL 9981
Kolmogorov-Smirnov 5% Critical Value	0.198	95% BCA Bootstrap UCL 10147
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 11611
		97.5% Chebyshev(Mean, Sd) UCL 12772
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 15052
95% Approximate Gamma UCL	10073	
95% Adjusted Gamma UCL	10180	

Potential UCL to Use	Use 95% Approximate Gamma UCL 10073

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Aroclor-1254 (PCB-1254)

General Statistics

Number of Valid Data	18	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	17
		Percent Non-Detects	94.44%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Aroclor-1254 (PCB-1254) was not processed!

TABLE D-2d1
ProUCL Output for Aggregate Soil- Area D1
Scovill Industrial Landfill Site
Waterbury, Connecticut

Arsenic

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	19

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.2	Minimum of Log Data	0.182
Maximum	6.7	Maximum of Log Data	1.902
Mean	3.216	Mean of log Data	1.076
Median	2.9	SD of log Data	0.449
SD	1.409		
Coefficient of Variation	0.438		
Skewness	0.739		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.948	Shapiro Wilk Test Statistic	0.982
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.776	95% H-UCL	3.991
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.713
95% Adjusted-CLT UCL (Chen-1995)	3.806	97.5% Chebyshev (MVUE) UCL	5.358
95% Modified-t UCL (Johnson-1978)	3.786	99% Chebyshev (MVUE) UCL	6.623

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.723	**Data appear Normal at 5% Significance Level**
Theta Star	0.681	
MLE of Mean	3.216	
MLE of Standard Deviation	1.48	
nu star	179.5	
Approximate Chi Square Value (.05)	149.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 3.748
Adjusted Chi Square Value	147.1	95% Jackknife UCL 3.776
		95% Standard Bootstrap UCL 3.737
Anderson-Darling Test Statistic	0.204	95% Bootstrap-t UCL 3.832
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL 3.864
Kolmogorov-Smirnov Test Statistic	0.105	95% Percentile Bootstrap UCL 3.732
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL 3.8
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 4.625
		97.5% Chebyshev(Mean, Sd) UCL 5.235
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 6.433
95% Approximate Gamma UCL	3.861	
95% Adjusted Gamma UCL	3.924	

Potential UCL to Use		Use 95% Student's-t UCL	3.776

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.031	Minimum of Log Data	-3.474
Maximum	1.8	Maximum of Log Data	0.588
Mean	0.315	Mean of log Data	-1.69
Median	0.18	SD of log Data	0.968
SD	0.451		
Coefficient of Variation	1.433		
Skewness	2.839		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.553	Shapiro Wilk Test Statistic	0.924
Shapiro Wilk Critical Value	0.892	Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.506	95% H-UCL	0.557
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.604
95% Adjusted-CLT UCL (Chen-1995)	0.575	97.5% Chebyshev (MVUE) UCL	0.742
95% Modified-t UCL (Johnson-1978)	0.518	99% Chebyshev (MVUE) UCL	1.013

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.922	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.341		
MLE of Mean	0.315		
MLE of Standard Deviation	0.328		
nu star	31.36		
Approximate Chi Square Value (.05)	19.56	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0346	95% CLT UCL	0.494
Adjusted Chi Square Value	18.59	95% Jackknife UCL	0.506
		95% Standard Bootstrap UCL	0.489
Anderson-Darling Test Statistic	1.366	95% Bootstrap-t UCL	1.266
Anderson-Darling 5% Critical Value	0.764	95% Hall's Bootstrap UCL	1.632
Kolmogorov-Smirnov Test Statistic	0.286	95% Percentile Bootstrap UCL	0.496
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	0.581
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.791
		97.5% Chebyshev(Mean, Sd) UCL	0.997
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.402
95% Approximate Gamma UCL	0.504		
95% Adjusted Gamma UCL	0.531		

Potential UCL to Use	Use 95% H-UCL	0.557

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	13

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.028	Minimum of Log Data	-3.576
Maximum	2.1	Maximum of Log Data	0.742
Mean	0.329	Mean of log Data	-1.718
Median	0.16	SD of log Data	1.009
SD	0.517		
Coefficient of Variation	1.573		
Skewness	3.029		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.535	Shapiro Wilk Test Statistic	0.923
Shapiro Wilk Critical Value	0.892	Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.547	95% H-UCL	0.587
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.624
95% Adjusted-CLT UCL (Chen-1995)	0.633	97.5% Chebyshev (MVUE) UCL	0.77
95% Modified-t UCL (Johnson-1978)	0.563	99% Chebyshev (MVUE) UCL	1.056

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.829	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.396		
MLE of Mean	0.329		
MLE of Standard Deviation	0.361		
nu star	28.19		
Approximate Chi Square Value (.05)	17.07	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0346	95% CLT UCL	0.535
Adjusted Chi Square Value	16.17	95% Jackknife UCL	0.547
		95% Standard Bootstrap UCL	0.534
Anderson-Darling Test Statistic	1.424	95% Bootstrap-t UCL	1.414
Anderson-Darling 5% Critical Value	0.768	95% Hall's Bootstrap UCL	1.575
Kolmogorov-Smirnov Test Statistic	0.241	95% Percentile Bootstrap UCL	0.552
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL	0.655
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	0.875
		97.5% Chebyshev(Mean, Sd) UCL	1.111
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1.575
95% Approximate Gamma UCL	0.542		
95% Adjusted Gamma UCL	0.573		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	0.875

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	15

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.027	Minimum of Log Data	-3.612
Maximum	2.7	Maximum of Log Data	0.993
Mean	0.441	Mean of log Data	-1.417
Median	0.21	SD of log Data	1.072
SD	0.651		
Coefficient of Variation	1.476		
Skewness	3.04		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.575	Shapiro Wilk Test Statistic	0.966
Shapiro Wilk Critical Value	0.892	Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.717	95% H-UCL	0.906
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.928
95% Adjusted-CLT UCL (Chen-1995)	0.825	97.5% Chebyshev (MVUE) UCL	1.152
95% Modified-t UCL (Johnson-1978)	0.736	99% Chebyshev (MVUE) UCL	1.592

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.836	**Data appear Lognormal at 5% Significance Level**
Theta Star	0.528	
MLE of Mean	0.441	
MLE of Standard Deviation	0.483	
nu star	28.41	
Approximate Chi Square Value (.05)	17.25	**Nonparametric Statistics**
Adjusted Level of Significance	0.0346	95% CLT UCL 0.701
Adjusted Chi Square Value	16.34	95% Jackknife UCL 0.717
		95% Standard Bootstrap UCL 0.694
Anderson-Darling Test Statistic	0.859	95% Bootstrap-t UCL 1.422
Anderson-Darling 5% Critical Value	0.767	95% Hall's Bootstrap UCL 1.944
Kolmogorov-Smirnov Test Statistic	0.218	95% Percentile Bootstrap UCL 0.706
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL 0.835
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1.13
		97.5% Chebyshev(Mean, Sd) UCL 1.428
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 2.013
95% Approximate Gamma UCL	0.727	
95% Adjusted Gamma UCL	0.767	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 1.13

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Observations	17	Number of Distinct Observations	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.029	Minimum of Log Data	-3.54
Maximum	1.9	Maximum of Log Data	0.642
Mean	0.35	Mean of log Data	-1.628
Median	0.16	SD of log Data	1.031
SD	0.494		
Coefficient of Variation	1.411		
Skewness	2.608		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.594	Shapiro Wilk Test Statistic	0.946
Shapiro Wilk Critical Value	0.892	Shapiro Wilk Critical Value	0.892
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.559	95% H-UCL	0.673
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.706
95% Adjusted-CLT UCL (Chen-1995)	0.628	97.5% Chebyshev (MVUE) UCL	0.873
95% Modified-t UCL (Johnson-1978)	0.572	99% Chebyshev (MVUE) UCL	1.202

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.862	**Data appear Lognormal at 5% Significance Level**
Theta Star	0.406	
MLE of Mean	0.35	
MLE of Standard Deviation	0.377	
nu star	29.31	
Approximate Chi Square Value (.05)	17.95	**Nonparametric Statistics**
Adjusted Level of Significance	0.0346	95% CLT UCL 0.547
Adjusted Chi Square Value	17.02	95% Jackknife UCL 0.559
		95% Standard Bootstrap UCL 0.54
Anderson-Darling Test Statistic	1.076	95% Bootstrap-t UCL 1.142
Anderson-Darling 5% Critical Value	0.766	95% Hall's Bootstrap UCL 1.621
Kolmogorov-Smirnov Test Statistic	0.23	95% Percentile Bootstrap UCL 0.564
Kolmogorov-Smirnov 5% Critical Value	0.215	95% BCA Bootstrap UCL 0.649
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.872
		97.5% Chebyshev(Mean, Sd) UCL 1.098
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.541
95% Approximate Gamma UCL	0.571	
95% Adjusted Gamma UCL	0.603	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 0.872

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	17	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	11
		Percent Non-Detects	64.71%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.025	Minimum Detected	-3.689
Maximum Detected	0.42	Maximum Detected	-0.868
Mean of Detected	0.133	Mean of Detected	-2.715
SD of Detected	0.168	SD of Detected	1.262
Minimum Non-Detect	0.22	Minimum Non-Detect	-1.514
Maximum Non-Detect	7.4	Maximum Non-Detect	2.001

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.726	Shapiro Wilk Test Statistic	0.762
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.367	Mean	-1.924
SD	0.865	SD	1.195
95% DL/2 (t) UCL	0.733	95% H-Stat (DL/2) UCL	0.725
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.016
		SD in Log Scale	0.779
		Mean in Original Scale	0.0751
		SD in Original Scale	0.104
		95% t UCL	0.119
		95% Percentile Bootstrap UCL	0.12
		95% BCA Bootstrap UCL	0.138

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.532	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.251		
nu star	6.386		
A-D Test Statistic	0.864	**Nonparametric Statistics**	
5% A-D Critical Value	0.719	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.719	Mean	0.0852
5% K-S Critical Value	0.342	SD	0.116
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0393
		95% KM (t) UCL	0.154
Assuming Gamma Distribution		95% KM (z) UCL	0.15
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.154
Minimum	0.025	95% KM (bootstrap t) UCL	1.009
Maximum	0.42	95% KM (BCA) UCL	0.16
Mean	0.131	95% KM (Percentile Bootstrap) UCL	0.153
Median	0.129	95% KM (Chebyshev) UCL	0.256

TABLE D-2d1
ProUCL Output for Aggregate Soil- Area D1
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.0943	97.5% KM (Chebyshev) UCL	0.33
k star	1.817	99% KM (Chebyshev) UCL	0.476
Theta star	0.0719		
Nu star	61.79	**Potential UCLs to Use**	
AppChi2	44.71	95% KM (BCA) UCL	0.16
95% Gamma Approximate UCL	0.181		
95% Adjusted Gamma UCL	0.187		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	17

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.2	Minimum of Log Data	1.435
Maximum	21.4	Maximum of Log Data	3.063
Mean	12.88	Mean of log Data	2.483
Median	12.8	SD of log Data	0.413
SD	4.654		
Coefficient of Variation	0.361		
Skewness	0.0433		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.985	Shapiro Wilk Test Statistic	0.948
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14.73	95% H-UCL	15.74
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	18.48
95% Adjusted-CLT UCL (Chen-1995)	14.65	97.5% Chebyshev (MVUE) UCL	20.85
95% Modified-t UCL (Johnson-1978)	14.73	99% Chebyshev (MVUE) UCL	25.52

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	5.974	**Data appear Normal at 5% Significance Level**
Theta Star	2.156	
MLE of Mean	12.88	
MLE of Standard Deviation	5.269	
nu star	227	
Approximate Chi Square Value (.05)	193.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 14.64
Adjusted Chi Square Value	190.4	95% Jackknife UCL 14.73
		95% Standard Bootstrap UCL 14.56
Anderson-Darling Test Statistic	0.197	95% Bootstrap-t UCL 14.79
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL 14.63
Kolmogorov-Smirnov Test Statistic	0.108	95% Percentile Bootstrap UCL 14.64
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL 14.57
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 17.53
		97.5% Chebyshev(Mean, Sd) UCL 19.55
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 23.5
95% Approximate Gamma UCL	15.14	
95% Adjusted Gamma UCL	15.35	

Potential UCL to Use	Use 95% Student's-t UCL 14.73

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	17

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.4	Minimum of Log Data	0.875
Maximum	8.5	Maximum of Log Data	2.14
Mean	5.453	Mean of log Data	1.664
Median	5.4	SD of log Data	0.269
SD	1.348		
Coefficient of Variation	0.247		
Skewness	0.188		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.968	Shapiro Wilk Test Statistic	0.92
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.989	95% H-UCL	6.15
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.955
95% Adjusted-CLT UCL (Chen-1995)	5.975	97.5% Chebyshev (MVUE) UCL	7.6
95% Modified-t UCL (Johnson-1978)	5.991	99% Chebyshev (MVUE) UCL	8.865

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	13.4	**Data appear Normal at 5% Significance Level**	
Theta Star	0.407		
MLE of Mean	5.453		
MLE of Standard Deviation	1.49		
nu star	509.1		
Approximate Chi Square Value (.05)	457.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0369	95% CLT UCL	5.961
Adjusted Chi Square Value	453.6	95% Jackknife UCL	5.989
		95% Standard Bootstrap UCL	5.945
Anderson-Darling Test Statistic	0.341	95% Bootstrap-t UCL	6.019
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL	6.018
Kolmogorov-Smirnov Test Statistic	0.129	95% Percentile Bootstrap UCL	5.937
Kolmogorov-Smirnov 5% Critical Value	0.198	95% BCA Bootstrap UCL	5.963
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.8
		97.5% Chebyshev(Mean, Sd) UCL	7.383
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.529
95% Approximate Gamma UCL	6.064		
95% Adjusted Gamma UCL	6.121		

Potential UCL to Use		Use 95% Student's-t UCL	5.989

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	17	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	6
		Percent Non-Detects	35.29%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.021	Minimum Detected	-3.863
Maximum Detected	0.53	Maximum Detected	-0.635
Mean of Detected	0.128	Mean of Detected	-2.579
SD of Detected	0.166	SD of Detected	0.965
Minimum Non-Detect	0.22	Minimum Non-Detect	-1.514
Maximum Non-Detect	7.4	Maximum Non-Detect	2.001

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.62	Shapiro Wilk Test Statistic	0.859
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.346	Mean	-2.147
SD	0.875	SD	1.223
95% DL/2 (t) UCL	0.717	95% H-Stat (DL/2) UCL	0.622
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.66
		SD in Log Scale	0.772
		Mean in Original Scale	0.104
		SD in Original Scale	0.136
		95% t UCL	0.161
		95% Percentile Bootstrap UCL	0.16
		95% BCA Bootstrap UCL	0.184
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.856	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.149		
nu star	18.84		
A-D Test Statistic	1.259	**Nonparametric Statistics**	
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.75	Mean	0.107
5% K-S Critical Value	0.262	SD	0.137
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0366
		95% KM (t) UCL	0.17
Assuming Gamma Distribution		95% KM (z) UCL	0.167
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.17
Minimum	0.021	95% KM (bootstrap t) UCL	0.42
Maximum	0.53	95% KM (BCA) UCL	0.175
Mean	0.128	95% KM (Percentile Bootstrap) UCL	0.165
Median	0.083	95% KM (Chebyshev) UCL	0.266
SD	0.131	97.5% KM (Chebyshev) UCL	0.335
k star	1.379	99% KM (Chebyshev) UCL	0.471
Theta star	0.0928		
Nu star	46.88	**Potential UCLs to Use**	
AppChi2	32.17	95% KM (BCA) UCL	0.175
95% Gamma Approximate UCL	0.187		
95% Adjusted Gamma UCL	0.194		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dimethyl phthalate

General Statistics

Number of Valid Data	17	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	16
		Percent Non-Detects	94.12%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Dimethyl phthalate was not processed!

Di-n-octyl phthalate

General Statistics

Number of Valid Data	17	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	16
		Percent Non-Detects	94.12%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Di-n-octyl phthalate was not processed!

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	17	Number of Detected Data	15
Number of Distinct Detected Data	12	Number of Non-Detect Data	2
		Percent Non-Detects	11.76%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.055	Minimum Detected	-2.9
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	0.261	Mean of Detected	-1.924
SD of Detected	0.431	SD of Detected	0.919
Minimum Non-Detect	0.23	Minimum Non-Detect	-1.47
Maximum Non-Detect	7.4	Maximum Non-Detect	2.001

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.484	Shapiro Wilk Test Statistic	0.786
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.455	Mean	-1.748
SD	0.929	SD	1.167
95% DL/2 (t) UCL	0.848	95% H-Stat (DL/2) UCL	0.809
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.936
		SD in Log Scale	0.861
		Mean in Original Scale	0.246
		SD in Original Scale	0.405
		95% t UCL	0.418
		95% Percentile Bootstrap UCL	0.425
		95% BCA Bootstrap UCL	0.505

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.838	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.312		
nu star	25.14		
A-D Test Statistic	2.178	**Nonparametric Statistics**	
5% A-D Critical Value	0.763	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.763	Mean	0.252
5% K-S Critical Value	0.228	SD	0.405
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.105
		95% KM (t) UCL	0.435
Assuming Gamma Distribution		95% KM (z) UCL	0.425
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.435
Minimum	0.055	95% KM (bootstrap t) UCL	1.777
Maximum	1.7	95% KM (BCA) UCL	0.462
Mean	0.26	95% KM (Percentile Bootstrap) UCL	0.441
Median	0.13	95% KM (Chebyshev) UCL	0.709
SD	0.403	97.5% KM (Chebyshev) UCL	0.907
k star	0.952	99% KM (Chebyshev) UCL	1.295
Theta star	0.273		
Nu star	32.36	**Potential UCLs to Use**	
AppChi2	20.35	95% KM (Chebyshev) UCL	0.709
95% Gamma Approximate UCL	0.413		
95% Adjusted Gamma UCL	0.434		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	5260	Minimum of Log Data	8.568
Maximum	17500	Maximum of Log Data	9.77
Mean	13028	Mean of log Data	9.443
Median	13700	SD of log Data	0.28
SD	3002		
Coefficient of Variation	0.23		
Skewness	-0.939		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.938	Shapiro Wilk Test Statistic	0.838
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14222	95% H-UCL	14806
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16802
95% Adjusted-CLT UCL (Chen-1995)	14002	97.5% Chebyshev (MVUE) UCL	18408
95% Modified-t UCL (Johnson-1978)	14197	99% Chebyshev (MVUE) UCL	21562

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	13.25	**Data appear Normal at 5% Significance Level**
Theta Star	982.9	
MLE of Mean	13028	
MLE of Standard Deviation	3578	
nu star	503.7	
Approximate Chi Square Value (.05)	452.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 14161
Adjusted Chi Square Value	448.4	95% Jackknife UCL 14222
		95% Standard Bootstrap UCL 14130
Anderson-Darling Test Statistic	0.757	95% Bootstrap-t UCL 14072
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL 14004
Kolmogorov-Smirnov Test Statistic	0.209	95% Percentile Bootstrap UCL 14067
Kolmogorov-Smirnov 5% Critical Value	0.198	95% BCA Bootstrap UCL 13986
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 16029
		97.5% Chebyshev(Mean, Sd) UCL 17328
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 19879
95% Approximate Gamma UCL	14497	
95% Adjusted Gamma UCL	14634	

Potential UCL to Use	Use 95% Student's-t UCL 14222

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	111	Minimum of Log Data	4.71
Maximum	445	Maximum of Log Data	6.098
Mean	252.9	Mean of log Data	5.478
Median	265	SD of log Data	0.354
SD	82.79		
Coefficient of Variation	0.327		
Skewness	0.302		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.976	Shapiro Wilk Test Statistic	0.957
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	285.9	95% H-UCL	298.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	345.3
95% Adjusted-CLT UCL (Chen-1995)	285.6	97.5% Chebyshev (MVUE) UCL	384.9
95% Modified-t UCL (Johnson-1978)	286.1	99% Chebyshev (MVUE) UCL	462.7

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.764	**Data appear Normal at 5% Significance Level**
Theta Star	32.58	
MLE of Mean	252.9	
MLE of Standard Deviation	90.78	
nu star	295	
Approximate Chi Square Value (.05)	256.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 284.2
Adjusted Chi Square Value	253.1	95% Jackknife UCL 285.9
		95% Standard Bootstrap UCL 283.8
Anderson-Darling Test Statistic	0.299	95% Bootstrap-t UCL 287.3
Anderson-Darling 5% Critical Value	0.741	95% Hall's Bootstrap UCL 288.8
Kolmogorov-Smirnov Test Statistic	0.126	95% Percentile Bootstrap UCL 283.1
Kolmogorov-Smirnov 5% Critical Value	0.199	95% BCA Bootstrap UCL 284.1
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 335.7
		97.5% Chebyshev(Mean, Sd) UCL 371.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 441.9
95% Approximate Gamma UCL	291.2	
95% Adjusted Gamma UCL	294.9	

Potential UCL to Use	Use 95% Student's-t UCL 285.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	19	Number of Detected Data	10
Number of Distinct Detected Data	8	Number of Non-Detect Data	9
		Percent Non-Detects	47.37%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.053	Minimum Detected	-2.937
Maximum Detected	1.3	Maximum Detected	0.262
Mean of Detected	0.309	Mean of Detected	-1.947
SD of Detected	0.472	SD of Detected	1.142
Minimum Non-Detect	0.0582	Minimum Non-Detect	-2.844
Maximum Non-Detect	0.95	Maximum Non-Detect	-0.0513

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	89.47%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.565	Shapiro Wilk Test Statistic	0.695
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.23	Mean	-2.158
SD	0.361	SD	1.048
95% DL/2 (t) UCL	0.374	95% H-Stat (DL/2) UCL	0.387
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.323
		SD in Log Scale	0.947
		Mean in Original Scale	0.195
		SD in Original Scale	0.356
		95% t UCL	0.337
		95% Percentile Bootstrap UCL	0.332
		95% BCA Bootstrap UCL	0.379

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.607	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.509		
nu star	12.14		
A-D Test Statistic	1.906	**Nonparametric Statistics**	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	0.197
5% K-S Critical Value	0.276	SD	0.346
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0838
		95% KM (t) UCL	0.343
Assuming Gamma Distribution		95% KM (z) UCL	0.335
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.337
Minimum	0.053	95% KM (bootstrap t) UCL	1.982
Maximum	1.3	95% KM (BCA) UCL	0.333
Mean	0.281	95% KM (Percentile Bootstrap) UCL	0.352
Median	0.11	95% KM (Chebyshev) UCL	0.562
SD	0.342	97.5% KM (Chebyshev) UCL	0.72
k star	1.044	99% KM (Chebyshev) UCL	1.031
Theta star	0.269		
Nu star	39.66	**Potential UCLs to Use**	
AppChi2	26.24	97.5% KM (Chebyshev) UCL	0.72
95% Gamma Approximate UCL	0.425		
95% Adjusted Gamma UCL	0.441		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Nickel

General Statistics

Number of Valid Data	19	Number of Detected Data	15
Number of Distinct Detected Data	13	Number of Non-Detect Data	4
		Percent Non-Detects	21.05%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	4	Minimum Detected	1.386
Maximum Detected	176	Maximum Detected	5.17
Mean of Detected	22.63	Mean of Detected	2.58
SD of Detected	42.59	SD of Detected	0.812
Minimum Non-Detect	10.7	Minimum Non-Detect	2.37
Maximum Non-Detect	11.6	Maximum Non-Detect	2.451

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	8
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	57.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.365	Shapiro Wilk Test Statistic	0.732
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19.04	Mean	2.398
SD	38.23	SD	0.802
95% DL/2 (t) UCL	34.25	95% H-Stat (DL/2) UCL	23.64
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	2.444
		SD in Log Scale	0.766
		Mean in Original Scale	19.33
		SD in Original Scale	38.13
		95% t UCL	34.5
		95% Percentile Bootstrap UCL	36.86
		95% BCA Bootstrap UCL	45.62

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.894	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	25.31		
nu star	26.82		
A-D Test Statistic	2.687	**Nonparametric Statistics**	
5% A-D Critical Value	0.762	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.762	Mean	19.57
5% K-S Critical Value	0.228	SD	37.05
Data not Gamma Distributed at 5% Significance Level		SE of Mean	8.805
		95% KM (t) UCL	34.84
Assuming Gamma Distribution		95% KM (z) UCL	34.06
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	34.73
Minimum	4	95% KM (bootstrap t) UCL	126.7
Maximum	176	95% KM (BCA) UCL	38.27
Mean	19.41	95% KM (Percentile Bootstrap) UCL	36.83
Median	11.2	95% KM (Chebyshev) UCL	57.95
SD	38.12	97.5% KM (Chebyshev) UCL	74.56
k star	0.957	99% KM (Chebyshev) UCL	107.2
Theta star	20.29		
Nu star	36.35	**Potential UCLs to Use**	
AppChi2	23.55	95% KM (BCA) UCL	38.27
95% Gamma Approximate UCL	29.95		
95% Adjusted Gamma UCL	31.14		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	19	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	16
		Percent Non-Detects	84.21%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1	Minimum Detected	0
Maximum Detected	1.8	Maximum Detected	0.588
Mean of Detected	1.467	Mean of Detected	0.353
SD of Detected	0.416	SD of Detected	0.311
Minimum Non-Detect	1.2	Minimum Non-Detect	0.182
Maximum Non-Detect	3.5	Maximum Non-Detect	1.253

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.923	Shapiro Wilk Test Statistic	0.893
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.009	Mean	-0.0847
SD	0.462	SD	0.436
95% DL/2 (t) UCL	1.193	95% H-Stat (DL/2) UCL	1.235
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.0665
		SD in Log Scale	0.206
		Mean in Original Scale	1.092
		SD in Original Scale	0.25
		95% t UCL	1.192
		95% Percentile Bootstrap UCL	1.184
		95% BCA Bootstrap UCL	1.204

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.1
5% K-S Critical Value	N/A	SD	0.248
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0811
		95% KM (t) UCL	1.241
Assuming Gamma Distribution		95% KM (z) UCL	1.233
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.475
Minimum	N/A	95% KM (bootstrap t) UCL	1.164
Maximum	N/A	95% KM (BCA) UCL	1.8

TABLE D-2d1
ProUCL Output for Aggregate Soil- Area D1
Scovill Industrial Landfill Site
Waterbury, Connecticut

Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	1.454
SD	N/A	97.5% KM (Chebyshev) UCL	1.607
k star	N/A	99% KM (Chebyshev) UCL	1.907
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.241
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	N/A
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	19	Number of Distinct Observations	19

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.1	Minimum of Log Data	2.208
Maximum	937	Maximum of Log Data	6.843
Mean	71.42	Mean of log Data	3.304
Median	24.4	SD of log Data	0.912
SD	209.7		
Coefficient of Variation	2.936		
Skewness	4.353		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.269	Shapiro Wilk Test Statistic	0.56
Shapiro Wilk Critical Value	0.901	Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	154.8	95% H-UCL	70.43
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	80.25
95% Adjusted-CLT UCL (Chen-1995)	201.9	97.5% Chebyshev (MVUE) UCL	97.64
95% Modified-t UCL (Johnson-1978)	162.8	99% Chebyshev (MVUE) UCL	131.8

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.57	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	125.3	
MLE of Mean	71.42	
MLE of Standard Deviation	94.59	
nu star	21.66	
Approximate Chi Square Value (.05)	12.09	**Nonparametric Statistics**
Adjusted Level of Significance	0.0369	95% CLT UCL 150.6
Adjusted Chi Square Value	11.46	95% Jackknife UCL 154.8
		95% Standard Bootstrap UCL 147
Anderson-Darling Test Statistic	5.047	95% Bootstrap-t UCL 2123
Anderson-Darling 5% Critical Value	0.79	95% Hall's Bootstrap UCL 1141
Kolmogorov-Smirnov Test Statistic	0.496	95% Percentile Bootstrap UCL 166.5
Kolmogorov-Smirnov 5% Critical Value	0.208	95% BCA Bootstrap UCL 218.2
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 281.1
		97.5% Chebyshev(Mean, Sd) UCL 371.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 550.1
95% Approximate Gamma UCL	128	
95% Adjusted Gamma UCL	135	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 281.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_D3-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	3170	Minimum of Log Data	8.061
Maximum	10400	Maximum of Log Data	9.25
Mean	7065	Mean of log Data	8.778
Median	7720	SD of log Data	0.46
SD	2836		
Coefficient of Variation	0.401		
Skewness	-0.311		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.896	Shapiro Wilk Test Statistic	0.876
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	8965	95% H-UCL	10747
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12208
95% Adjusted-CLT UCL (Chen-1995)	8597	97.5% Chebyshev (MVUE) UCL	14411
95% Modified-t UCL (Johnson-1978)	8946	99% Chebyshev (MVUE) UCL	18740

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.872	**Data appear Normal at 5% Significance Level**
Theta Star	1825	
MLE of Mean	7065	
MLE of Standard Deviation	3591	
nu star	61.95	
Approximate Chi Square Value (.05)	44.84	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 8714
Adjusted Chi Square Value	41.19	95% Jackknife UCL 8965
		95% Standard Bootstrap UCL 8575
Anderson-Darling Test Statistic	0.498	95% Bootstrap-t UCL 8836
Anderson-Darling 5% Critical Value	0.718	95% Hall's Bootstrap UCL 8363
Kolmogorov-Smirnov Test Statistic	0.213	95% Percentile Bootstrap UCL 8646
Kolmogorov-Smirnov 5% Critical Value	0.295	95% BCA Bootstrap UCL 8550
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 11436
		97.5% Chebyshev(Mean, Sd) UCL 13327
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 17043
95% Approximate Gamma UCL	9760	
95% Adjusted Gamma UCL	10626	

Potential UCL to Use	Use 95% Student's-t UCL 8965

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.4	Minimum of Log Data	0.336
Maximum	11.2	Maximum of Log Data	2.416
Mean	5.138	Mean of log Data	1.421
Median	4.3	SD of log Data	0.714
SD	3.565		
Coefficient of Variation	0.694		
Skewness	0.965		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.871	Shapiro Wilk Test Statistic	0.955
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7.525	95% H-UCL	11.27
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10.91
95% Adjusted-CLT UCL (Chen-1995)	7.67	97.5% Chebyshev (MVUE) UCL	13.41
95% Modified-t UCL (Johnson-1978)	7.597	99% Chebyshev (MVUE) UCL	18.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.63	**Data appear Normal at 5% Significance Level**
Theta Star	3.153	
MLE of Mean	5.138	
MLE of Standard Deviation	4.024	
nu star	26.07	
Approximate Chi Square Value (.05)	15.44	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 7.211
Adjusted Chi Square Value	13.41	95% Jackknife UCL 7.525
		95% Standard Bootstrap UCL 7.07
Anderson-Darling Test Statistic	0.3	95% Bootstrap-t UCL 9.563
Anderson-Darling 5% Critical Value	0.723	95% Hall's Bootstrap UCL 21.27
Kolmogorov-Smirnov Test Statistic	0.174	95% Percentile Bootstrap UCL 6.988
Kolmogorov-Smirnov 5% Critical Value	0.297	95% BCA Bootstrap UCL 7.463
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 10.63
		97.5% Chebyshev(Mean, Sd) UCL 13.01
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 17.68
95% Approximate Gamma UCL	8.678	
95% Adjusted Gamma UCL	9.989	

Potential UCL to Use	Use 95% Student's-t UCL 7.525

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	8	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	12.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.17	Minimum Detected	-1.772
Maximum Detected	4.4	Maximum Detected	1.482
Mean of Detected	2.216	Mean of Detected	0.341
SD of Detected	1.687	SD of Detected	1.22
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.18	Maximum Non-Detect	-1.715

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.914	Shapiro Wilk Test Statistic	0.881
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.95	Mean	-0.00265
SD	1.733	SD	1.49
95% DL/2 (t) UCL	3.111	95% H-Stat (DL/2) UCL	43.05
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.665	Mean in Log Scale	0.099
SD	2.037	SD in Log Scale	1.321
95% MLE (t) UCL	3.03	Mean in Original Scale	1.964
95% MLE (Tiku) UCL	3.101	SD in Original Scale	1.716
		95% t UCL	3.114
		95% Percentile Bootstrap UCL	2.905
		95% BCA Bootstrap UCL	2.98

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.804	**Data appear Normal at 5% Significance Level**	
Theta Star	2.757		
nu star	11.25		
A-D Test Statistic	0.392	**Nonparametric Statistics**	
5% A-D Critical Value	0.724	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.724	Mean	1.96
5% K-S Critical Value	0.318	SD	1.61
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.615
		95% KM (t) UCL	3.125
Assuming Gamma Distribution		95% KM (z) UCL	2.971
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.106
Minimum	0.17	95% KM (bootstrap t) UCL	3.148
Maximum	4.4	95% KM (BCA) UCL	3.043
Mean	1.971	95% KM (Percentile Bootstrap) UCL	3.055
Median	1.71	95% KM (Chebyshev) UCL	4.64
SD	1.709	97.5% KM (Chebyshev) UCL	5.799
k star	0.735	99% KM (Chebyshev) UCL	8.077
Theta star	2.682		

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Nu star	11.76	**Potential UCLs to Use**	
AppChi2	5.067	95% KM (t) UCL	3.125
95% Gamma Approximate UCL	4.572	95% KM (Percentile Bootstrap) UCL	3.055
95% Adjusted Gamma UCL	5.772		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.022	Minimum of Log Data	-3.817
Maximum	4.7	Maximum of Log Data	1.548
Mean	2.149	Mean of log Data	-0.107
Median	2.275	SD of log Data	1.921
SD	1.866		
Coefficient of Variation	0.868		
Skewness	0.0711		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.87	Shapiro Wilk Test Statistic	0.841
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.399	95% H-UCL	415.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	14.13
95% Adjusted-CLT UCL (Chen-1995)	3.252	97.5% Chebyshev (MVUE) UCL	18.66
95% Modified-t UCL (Johnson-1978)	3.402	99% Chebyshev (MVUE) UCL	27.56

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.517	**Data appear Normal at 5% Significance Level**
Theta Star	4.157	
MLE of Mean	2.149	
MLE of Standard Deviation	2.989	
nu star	8.271	
Approximate Chi Square Value (.05)	2.893	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 3.234
Adjusted Chi Square Value	2.151	95% Jackknife UCL 3.399
		95% Standard Bootstrap UCL 3.196
Anderson-Darling Test Statistic	0.51	95% Bootstrap-t UCL 3.416
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL 2.994
Kolmogorov-Smirnov Test Statistic	0.29	95% Percentile Bootstrap UCL 3.191
Kolmogorov-Smirnov 5% Critical Value	0.305	95% BCA Bootstrap UCL 3.136
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 5.025
		97.5% Chebyshev(Mean, Sd) UCL 6.27
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.715
95% Approximate Gamma UCL	6.144	
95% Adjusted Gamma UCL	8.262	

Potential UCL to Use	Use 95% Student's-t UCL 3.399

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.026	Minimum of Log Data	-3.65
Maximum	7.6	Maximum of Log Data	2.028
Mean	3.111	Mean of log Data	0.198
Median	3.05	SD of log Data	2.033
SD	2.751		
Coefficient of Variation	0.884		
Skewness	0.372		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.931	Shapiro Wilk Test Statistic	0.842
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.954	95% H-UCL	1156
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.95
95% Adjusted-CLT UCL (Chen-1995)	4.847	97.5% Chebyshev (MVUE) UCL	30.4
95% Modified-t UCL (Johnson-1978)	4.975	99% Chebyshev (MVUE) UCL	45.03

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.491	**Data appear Normal at 5% Significance Level**
Theta Star	6.342	
MLE of Mean	3.111	
MLE of Standard Deviation	4.442	
nu star	7.848	
Approximate Chi Square Value (.05)	2.647	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 4.711
Adjusted Chi Square Value	1.947	95% Jackknife UCL 4.954
		95% Standard Bootstrap UCL 4.571
Anderson-Darling Test Statistic	0.45	95% Bootstrap-t UCL 5.111
Anderson-Darling 5% Critical Value	0.752	95% Hall's Bootstrap UCL 4.799
Kolmogorov-Smirnov Test Statistic	0.267	95% Percentile Bootstrap UCL 4.678
Kolmogorov-Smirnov 5% Critical Value	0.306	95% BCA Bootstrap UCL 4.713
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.351
		97.5% Chebyshev(Mean, Sd) UCL 9.185
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12.79
95% Approximate Gamma UCL	9.222	
95% Adjusted Gamma UCL	12.54	

Potential UCL to Use	Use 95% Student's-t UCL 4.954

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(g,h,i)perylene

General Statistics

Number of Valid Data	8	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	12.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.091	Minimum Detected	-2.397
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	0.902	Mean of Detected	-0.841
SD of Detected	1.345	SD of Detected	1.295
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.18	Maximum Non-Detect	-1.715

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.623	Shapiro Wilk Test Statistic	0.918
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.8	Mean	-1.037
SD	1.278	SD	1.321
95% DL/2 (t) UCL	1.656	95% H-Stat (DL/2) UCL	7.092
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.366	Mean in Log Scale	-1.029
SD	1.644	SD in Log Scale	1.312
95% MLE (t) UCL	1.467	Mean in Original Scale	0.801
95% MLE (Tiku) UCL	1.577	SD in Original Scale	1.278
		95% t UCL	1.657
		95% Percentile Bootstrap UCL	1.655
		95% BCA Bootstrap UCL	2.128

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.555	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.626		
nu star	7.765		
A-D Test Statistic	0.527	**Nonparametric Statistics**	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.734	Mean	0.801
5% K-S Critical Value	0.322	SD	1.195
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.456
		95% KM (t) UCL	1.666
Assuming Gamma Distribution		95% KM (z) UCL	1.552
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.657
Minimum	1E-12	95% KM (bootstrap t) UCL	3.777
Maximum	3.9	95% KM (BCA) UCL	1.75
Mean	0.789	95% KM (Percentile Bootstrap) UCL	1.677
Median	0.448	95% KM (Chebyshev) UCL	2.79
SD	1.286	97.5% KM (Chebyshev) UCL	3.651
k star	0.201	99% KM (Chebyshev) UCL	5.342
Theta star	3.93		

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Nu star	3.213	**Potential UCLs to Use**	
AppChi2	0.438	95% KM (Chebyshev) UCL	2.79
95% Gamma Approximate UCL	5.786		
95% Adjusted Gamma UCL	9.98		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	8	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	2
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.021	Minimum Detected	-3.863
Maximum Detected	3.6	Maximum Detected	1.281
Mean of Detected	1.657	Mean of Detected	-0.469
SD of Detected	1.562	SD of Detected	2.041
Minimum Non-Detect	1.4	Minimum Non-Detect	0.336
Maximum Non-Detect	1.7	Maximum Non-Detect	0.531

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	5
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	62.50%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.871	Shapiro Wilk Test Statistic	0.866
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.436	Mean	-0.417
SD	1.382	SD	1.728
95% DL/2 (t) UCL	2.362	95% H-Stat (DL/2) UCL	97.98
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.322	Mean in Log Scale	-0.851
SD	1.576	SD in Log Scale	1.864
95% MLE (t) UCL	2.377	Mean in Original Scale	1.277
95% MLE (Tiku) UCL	2.857	SD in Original Scale	1.496
		95% t UCL	2.279
		95% Percentile Bootstrap UCL	2.154
		95% BCA Bootstrap UCL	2.157

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.426	**Data appear Normal at 5% Significance Level**	
Theta Star	3.889		
nu star	5.112		
A-D Test Statistic	0.4	**Nonparametric Statistics**	
5% A-D Critical Value	0.728	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.728	Mean	1.313
5% K-S Critical Value	0.346	SD	1.378
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.538
		95% KM (t) UCL	2.332
Assuming Gamma Distribution		95% KM (z) UCL	2.198
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.317
Minimum	0.021	95% KM (bootstrap t) UCL	2.462
Maximum	3.6	95% KM (BCA) UCL	2.285
Mean	1.555	95% KM (Percentile Bootstrap) UCL	2.218
Median	1.248	95% KM (Chebyshev) UCL	3.658

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	1.334	97.5% KM (Chebyshev) UCL	4.673
k star	0.586	99% KM (Chebyshev) UCL	6.667
Theta star	2.654		
Nu star	9.372	**Potential UCLs to Use**	
AppChi2	3.553	95% KM (t) UCL	2.332
95% Gamma Approximate UCL	4.1	95% KM (Percentile Bootstrap) UCL	2.218
95% Adjusted Gamma UCL	5.38		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	8	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	2
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.039	Minimum Detected	-3.244
Maximum Detected	0.32	Maximum Detected	-1.139
Mean of Detected	0.14	Mean of Detected	-2.229
SD of Detected	0.105	SD of Detected	0.823
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.91	Shapiro Wilk Test Statistic	0.941
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.141	Mean	-2.177
SD	0.0933	SD	0.732
95% DL/2 (t) UCL	0.203	95% H-Stat (DL/2) UCL	0.322
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.29
		SD in Log Scale	0.71
		Mean in Original Scale	0.126
		SD in Original Scale	0.0927
		95% t UCL	0.188
		95% Percentile Bootstrap UCL	0.181
		95% BCA Bootstrap UCL	0.196

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.143	**Data appear Normal at 5% Significance Level**	
Theta Star	0.122		
nu star	13.72		
A-D Test Statistic	0.243	**Nonparametric Statistics**	
5% A-D Critical Value	0.704	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.704	Mean	0.132
5% K-S Critical Value	0.336	SD	0.0927
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0392
		95% KM (t) UCL	0.206
Assuming Gamma Distribution		95% KM (z) UCL	0.196
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.207
Minimum	0.039	95% KM (bootstrap t) UCL	0.233
Maximum	0.32	95% KM (BCA) UCL	0.194
Mean	0.14	95% KM (Percentile Bootstrap) UCL	0.199
Median	0.13	95% KM (Chebyshev) UCL	0.303

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.0902	97.5% KM (Chebyshev) UCL	0.376
k star	1.732	99% KM (Chebyshev) UCL	0.522
Theta star	0.0806		
Nu star	27.72	**Potential UCLs to Use**	
AppChi2	16.71	95% KM (t) UCL	0.206
95% Gamma Approximate UCL	0.232	95% KM (Percentile Bootstrap) UCL	0.199
95% Adjusted Gamma UCL	0.265		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.4	Minimum of Log Data	1.686
Maximum	28.3	Maximum of Log Data	3.343
Mean	10.98	Mean of log Data	2.254
Median	9.4	SD of log Data	0.528
SD	7.395		
Coefficient of Variation	0.674		
Skewness	2.26		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.716	Shapiro Wilk Test Statistic	0.891
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15.93	95% H-UCL	17.69
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	19.59
95% Adjusted-CLT UCL (Chen-1995)	17.51	97.5% Chebyshev (MVUE) UCL	23.41
95% Modified-t UCL (Johnson-1978)	16.28	99% Chebyshev (MVUE) UCL	30.93

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.389	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	4.594	
MLE of Mean	10.98	
MLE of Standard Deviation	7.101	
nu star	38.22	
Approximate Chi Square Value (.05)	25.07	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 15.28
Adjusted Chi Square Value	22.41	95% Jackknife UCL 15.93
		95% Standard Bootstrap UCL 15.03
Anderson-Darling Test Statistic	0.571	95% Bootstrap-t UCL 21.9
Anderson-Darling 5% Critical Value	0.719	95% Hall's Bootstrap UCL 32.21
Kolmogorov-Smirnov Test Statistic	0.264	95% Percentile Bootstrap UCL 15.61
Kolmogorov-Smirnov 5% Critical Value	0.296	95% BCA Bootstrap UCL 17.11
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 22.37
		97.5% Chebyshev(Mean, Sd) UCL 27.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 36.99
95% Approximate Gamma UCL	16.74	
95% Adjusted Gamma UCL	18.72	

Potential UCL to Use	Use 95% Approximate Gamma UCL 16.74

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	6

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.2	Minimum of Log Data	0.788
Maximum	6.1	Maximum of Log Data	1.808
Mean	4.719	Mean of log Data	1.517
Median	4.9	SD of log Data	0.307
SD	1.121		
Coefficient of Variation	0.237		
Skewness	-1.774		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.795	Shapiro Wilk Test Statistic	0.689
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.469	95% H-UCL	6.075
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.008
95% Adjusted-CLT UCL (Chen-1995)	5.105	97.5% Chebyshev (MVUE) UCL	7.985
95% Modified-t UCL (Johnson-1978)	5.428	99% Chebyshev (MVUE) UCL	9.905

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	9.223	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	0.512	
MLE of Mean	4.719	
MLE of Standard Deviation	1.554	
nu star	147.6	
Approximate Chi Square Value (.05)	120.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 5.37
Adjusted Chi Square Value	114.3	95% Jackknife UCL 5.469
		95% Standard Bootstrap UCL 5.323
Anderson-Darling Test Statistic	1.1	95% Bootstrap-t UCL 5.258
Anderson-Darling 5% Critical Value	0.716	95% Hall's Bootstrap UCL 5.195
Kolmogorov-Smirnov Test Statistic	0.355	95% Percentile Bootstrap UCL 5.263
Kolmogorov-Smirnov 5% Critical Value	0.294	95% BCA Bootstrap UCL 5.175
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 6.446
		97.5% Chebyshev(Mean, Sd) UCL 7.193
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.661
95% Approximate Gamma UCL	5.779	
95% Adjusted Gamma UCL	6.092	

Potential UCL to Use	Use 95% Student's-t UCL 5.469
	or 95% Modified-t UCL 5.428

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	8	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	12.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.038	Minimum Detected	-3.27
Maximum Detected	1.6	Maximum Detected	0.47
Mean of Detected	0.376	Mean of Detected	-1.696
SD of Detected	0.55	SD of Detected	1.291
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.18	Maximum Non-Detect	-1.715

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.629	Shapiro Wilk Test Statistic	0.911
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.34	Mean	-1.785
SD	0.519	SD	1.221
95% DL/2 (t) UCL	0.688	95% H-Stat (DL/2) UCL	2.234
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0705	Mean in Log Scale	-1.834
SD	0.746	SD in Log Scale	1.257
95% MLE (t) UCL	0.57	Mean in Original Scale	0.337
95% MLE (Tiku) UCL	0.692	SD in Original Scale	0.521
		95% t UCL	0.685
		95% Percentile Bootstrap UCL	0.664
		95% BCA Bootstrap UCL	0.865

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.566	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.665		
nu star	7.921		
A-D Test Statistic	0.525	**Nonparametric Statistics**	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.734	Mean	0.339
5% K-S Critical Value	0.322	SD	0.486
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.186
		95% KM (t) UCL	0.691
Assuming Gamma Distribution		95% KM (z) UCL	0.645
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.688
Minimum	0.038	95% KM (bootstrap t) UCL	1.495
Maximum	1.6	95% KM (BCA) UCL	0.726
Mean	0.334	95% KM (Percentile Bootstrap) UCL	0.679
Median	0.198	95% KM (Chebyshev) UCL	1.15
SD	0.522	97.5% KM (Chebyshev) UCL	1.5
k star	0.559	99% KM (Chebyshev) UCL	2.189
Theta star	0.598		

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Nu star	8.942	**Potential UCLs to Use**	
AppChi2	3.292	95% KM (Chebyshev) UCL	1.15
95% Gamma Approximate UCL	0.908		
95% Adjusted Gamma UCL	1.202		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	8	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	12.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.072	Minimum Detected	-2.631
Maximum Detected	3.2	Maximum Detected	1.163
Mean of Detected	0.857	Mean of Detected	-0.795
SD of Detected	1.077	SD of Detected	1.295
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.18	Maximum Non-Detect	-1.715

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.715	Shapiro Wilk Test Statistic	0.95
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.762	Mean	-0.997
SD	1.034	SD	1.327
95% DL/2 (t) UCL	1.454	95% H-Stat (DL/2) UCL	7.597
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.427	Mean in Log Scale	-0.988
SD	1.338	SD in Log Scale	1.317
95% MLE (t) UCL	1.323	Mean in Original Scale	0.762
95% MLE (Tiku) UCL	1.414	SD in Original Scale	1.033
		95% t UCL	1.454
		95% Percentile Bootstrap UCL	1.427
		95% BCA Bootstrap UCL	1.698

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.615	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.393		
nu star	8.615		
A-D Test Statistic	0.32	**Nonparametric Statistics**	
5% A-D Critical Value	0.731	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.731	Mean	0.762
5% K-S Critical Value	0.321	SD	0.967
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.369
		95% KM (t) UCL	1.461
Assuming Gamma Distribution		95% KM (z) UCL	1.369
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.454
Minimum	0.00212	95% KM (bootstrap t) UCL	2.416
Maximum	3.2	95% KM (BCA) UCL	1.402
Mean	0.751	95% KM (Percentile Bootstrap) UCL	1.426
Median	0.505	95% KM (Chebyshev) UCL	2.371
SD	1.042	97.5% KM (Chebyshev) UCL	3.068
k star	0.417	99% KM (Chebyshev) UCL	4.436
Theta star	1.8		

TABLE D-2d3
ProUCL Output for Aggregate Soil- Area D3
Scovill Industrial Landfill Site
Waterbury, Connecticut

Nu star	6.67	**Potential UCLs to Use**	
AppChi2	1.991	95% KM (Chebyshev) UCL	2.371
95% Gamma Approximate UCL	2.514		
95% Adjusted Gamma UCL	3.548		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	6720	Minimum of Log Data	8.813
Maximum	13300	Maximum of Log Data	9.496
Mean	10620	Mean of log Data	9.235
Median	11900	SD of log Data	0.306
SD	2985		
Coefficient of Variation	0.281		
Skewness	-0.611		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.86	Shapiro Wilk Test Statistic	0.851
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13466	95% H-UCL	15557
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16975
95% Adjusted-CLT UCL (Chen-1995)	12426	97.5% Chebyshev (MVUE) UCL	19717
95% Modified-t UCL (Johnson-1978)	13405	99% Chebyshev (MVUE) UCL	25102

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	5.828	**Data appear Normal at 5% Significance Level**
Theta Star	1822	
MLE of Mean	10620	
MLE of Standard Deviation	4399	
nu star	58.28	
Approximate Chi Square Value (.05)	41.73	**Nonparametric Statistics**
Adjusted Level of Significance	0.0086	95% CLT UCL 12816
Adjusted Chi Square Value	35.7	95% Jackknife UCL 13466
		95% Standard Bootstrap UCL 12586
Anderson-Darling Test Statistic	0.488	95% Bootstrap-t UCL 12997
Anderson-Darling 5% Critical Value	0.679	95% Hall's Bootstrap UCL 11845
Kolmogorov-Smirnov Test Statistic	0.3	95% Percentile Bootstrap UCL 12620
Kolmogorov-Smirnov 5% Critical Value	0.357	95% BCA Bootstrap UCL 12216
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 16439
		97.5% Chebyshev(Mean, Sd) UCL 18958
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 23904
95% Approximate Gamma UCL	14832	
95% Adjusted Gamma UCL	17339	

Potential UCL to Use	Use 95% Student's-t UCL 13466

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	28.2	Minimum of Log Data	3.339
Maximum	511.5	Maximum of Log Data	6.237
Mean	109.7	Mean of log Data	4.142
Median	45.9	SD of log Data	0.965
SD	164.5		
Coefficient of Variation	1.5		
Skewness	2.69		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.554	Shapiro Wilk Test Statistic	0.814
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	219.8	95% H-UCL	338.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	234.1
95% Adjusted-CLT UCL (Chen-1995)	264.4	97.5% Chebyshev (MVUE) UCL	295.2
95% Modified-t UCL (Johnson-1978)	229.1	99% Chebyshev (MVUE) UCL	415.2

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.731	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	150.1	
MLE of Mean	109.7	
MLE of Standard Deviation	128.3	
nu star	11.69	
Approximate Chi Square Value (.05)	5.023	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 205.3
Adjusted Chi Square Value	3.975	95% Jackknife UCL 219.8
		95% Standard Bootstrap UCL 199.4
Anderson-Darling Test Statistic	1.026	95% Bootstrap-t UCL 728.5
Anderson-Darling 5% Critical Value	0.735	95% Hall's Bootstrap UCL 588.4
Kolmogorov-Smirnov Test Statistic	0.276	95% Percentile Bootstrap UCL 221.4
Kolmogorov-Smirnov 5% Critical Value	0.301	95% BCA Bootstrap UCL 272.6
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 363.1
		97.5% Chebyshev(Mean, Sd) UCL 472.8
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 688.3
95% Approximate Gamma UCL	255.2	
95% Adjusted Gamma UCL	322.5	

Potential UCL to Use	Use 95% Approximate Gamma UCL 255.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	5	Number of Distinct Observations	5

Raw Statistics		**Log-transformed Statistics**	
Minimum	106	Minimum of Log Data	4.663
Maximum	240	Maximum of Log Data	5.481
Mean	172.6	Mean of log Data	5.101
Median	197	SD of log Data	0.361
SD	57.92		
Coefficient of Variation	0.336		
Skewness	-0.24		

Warning: A sample size of 'n' = 5 may not adequate enough to compute meaningful and reliable test statistics and estimates!

It is suggested to collect at least 8 to 10 observations using these statistical methods!
If possible compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Warning: There are only 5 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.891	Shapiro Wilk Test Statistic	0.869
Shapiro Wilk Critical Value	0.762	Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	227.8	95% H-UCL	277.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	294
95% Adjusted-CLT UCL (Chen-1995)	212.2	97.5% Chebyshev (MVUE) UCL	346.4
95% Modified-t UCL (Johnson-1978)	227.4	99% Chebyshev (MVUE) UCL	449.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.221	**Data appear Normal at 5% Significance Level**
Theta Star	40.89	
MLE of Mean	172.6	
MLE of Standard Deviation	84.01	
nu star	42.21	
Approximate Chi Square Value (.05)	28.31	**Nonparametric Statistics**
Adjusted Level of Significance	0.0086	95% CLT UCL 215.2
Adjusted Chi Square Value	23.46	95% Jackknife UCL 227.8
		95% Standard Bootstrap UCL 210.4
Anderson-Darling Test Statistic	0.463	95% Bootstrap-t UCL 233.2
Anderson-Darling 5% Critical Value	0.679	95% Hall's Bootstrap UCL 198.4
Kolmogorov-Smirnov Test Statistic	0.304	95% Percentile Bootstrap UCL 208
Kolmogorov-Smirnov 5% Critical Value	0.358	95% BCA Bootstrap UCL 206.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 285.5
		97.5% Chebyshev(Mean, Sd) UCL 334.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 430.3
95% Approximate Gamma UCL	257.3	
95% Adjusted Gamma UCL	310.6	

Potential UCL to Use	Use 95% Student's-t UCL 227.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	10.6	Minimum of Log Data	2.361
Maximum	51.25	Maximum of Log Data	3.937
Mean	22.43	Mean of log Data	3.004
Median	18.25	SD of log Data	0.466
SD	12.66		
Coefficient of Variation	0.564		
Skewness	2.046		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.766	Shapiro Wilk Test Statistic	0.917
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	30.91	95% H-UCL	33.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	38.21
95% Adjusted-CLT UCL (Chen-1995)	33.25	97.5% Chebyshev (MVUE) UCL	45.16
95% Modified-t UCL (Johnson-1978)	31.45	99% Chebyshev (MVUE) UCL	58.8

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.12	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	7.19	
MLE of Mean	22.43	
MLE of Standard Deviation	12.7	
nu star	49.91	
Approximate Chi Square Value (.05)	34.69	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 29.79
Adjusted Chi Square Value	31.51	95% Jackknife UCL 30.91
		95% Standard Bootstrap UCL 29.34
Anderson-Darling Test Statistic	0.562	95% Bootstrap-t UCL 45.42
Anderson-Darling 5% Critical Value	0.719	95% Hall's Bootstrap UCL 72.49
Kolmogorov-Smirnov Test Statistic	0.263	95% Percentile Bootstrap UCL 30.54
Kolmogorov-Smirnov 5% Critical Value	0.295	95% BCA Bootstrap UCL 33.89
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 41.94
		97.5% Chebyshev(Mean, Sd) UCL 50.39
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 66.97
95% Approximate Gamma UCL	32.27	
95% Adjusted Gamma UCL	35.53	

Potential UCL to Use	Use 95% Approximate Gamma UCL 32.27

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2e1
ProUCL Output for Aggregate Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL\Aggregate_E1-ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

bis(2-Chloroethyl)ether

General Statistics

Number of Valid Data	22	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	21
		Percent Non-Detects	95.45%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable bis(2-Chloroethyl)ether was not processed!

4-Bromophenyl phenyl ether

General Statistics

Number of Valid Data	22	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	21
		Percent Non-Detects	95.45%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 4-Bromophenyl phenyl ether was not processed!

Carbazole

General Statistics

Number of Valid Data	20	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	13
		Percent Non-Detects	65.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.034	Minimum Detected	-3.381
Maximum Detected	1.6	Maximum Detected	0.47
Mean of Detected	0.857	Mean of Detected	-0.821
SD of Detected	0.643	SD of Detected	1.632
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.42	Maximum Non-Detect	-0.868

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	5
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	75.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.902	Shapiro Wilk Test Statistic	0.769
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.422	Mean	-1.373
SD	0.487	SD	1.008
95% DL/2 (t) UCL	0.611	95% H-Stat (DL/2) UCL	0.803
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.205	Mean in Log Scale	-2.179
SD	0.355	SD in Log Scale	1.47
95% MLE (t) UCL	1.342	Mean in Original Scale	0.343
95% MLE (Tiku) UCL	1.478	SD in Original Scale	0.53
		95% Percentile Bootstrap UCL	0.546
		95% BCA Bootstrap UCL	0.579

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.598	**Data appear Normal at 5% Significance Level**	
Theta Star	1.433		
nu star	8.369		
A-D Test Statistic	0.703	**Nonparametric Statistics**	
5% A-D Critical Value	0.732	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.732	Mean	0.328
5% K-S Critical Value	0.321	SD	0.524
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.127
		95% KM (t) UCL	0.547
Assuming Gamma Distribution		95% KM (z) UCL	0.536
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.537
Minimum	0.034	95% KM (bootstrap t) UCL	0.568
Maximum	1.6	95% KM (BCA) UCL	0.99
Mean	0.841	95% KM (Percentile Bootstrap) UCL	0.838
Median	0.844	95% KM (Chebyshev) UCL	0.88

TABLE D-2e1
ProUCL Output for Aggregate Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.372	97.5% KM (Chebyshev) UCL	1.119
k star	1.941	99% KM (Chebyshev) UCL	1.588
Theta star	0.433		
Nu star	77.65	**Potential UCLs to Use**	
AppChi2	58.35	95% KM (t) UCL	0.547
95% Gamma Approximate UCL	1.119	95% KM (Percentile Bootstrap) UCL	0.838
95% Adjusted Gamma UCL	1.145		

Note: DL/2 is not a recommended method.

4-Chlorophenyl phenyl ether

General Statistics

Number of Valid Data	22	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	21
		Percent Non-Detects	95.45%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 4-Chlorophenyl phenyl ether was not processed!

Di-n-octyl phthalate

General Statistics

Number of Valid Data	22	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	20
		Percent Non-Detects	90.91%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.12	Minimum Detected	-2.12
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.76	Mean of Detected	-0.892
SD of Detected	0.905	SD of Detected	1.737
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.1	Maximum Non-Detect	0.742

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	22
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.268	Mean	-1.607
SD	0.317	SD	0.638
95% DL/2 (t) UCL	0.384	95% H-Stat (DL/2) UCL	0.354
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.181
5% K-S Critical Value	N/A	SD	0.273
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0841
		95% KM (t) UCL	0.326
Assuming Gamma Distribution		95% KM (z) UCL	0.319
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.026

TABLE D-2e1
ProUCL Output for Aggregate Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

Minimum	N/A	95% KM (bootstrap t) UCL	0.185
Maximum	N/A	95% KM (BCA) UCL	1.4
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1.4
Median	N/A	95% KM (Chebyshev) UCL	0.548
SD	N/A	97.5% KM (Chebyshev) UCL	0.706
k star	N/A	99% KM (Chebyshev) UCL	1.018
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	97.5% KM (Chebyshev) UCL	0.706
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Hexachlorobenzene

General Statistics

Number of Valid Data	22	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	21
		Percent Non-Detects	95.45%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Hexachlorobenzene was not processed!

N-Nitrosodi-n-propylamine

General Statistics

Number of Valid Data	22	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	21
		Percent Non-Detects	95.45%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable N-Nitrosodi-n-propylamine was not processed!

Benzo(a)anthracene

General Statistics

Number of Valid Data	22	Number of Detected Data	19
Number of Distinct Detected Data	19	Number of Non-Detect Data	3
		Percent Non-Detects	13.64%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.047	Minimum Detected	-3.058
Maximum Detected	7.2	Maximum Detected	1.974
Mean of Detected	1.233	Mean of Detected	-1.274
SD of Detected	2.197	SD of Detected	1.707
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.604	Shapiro Wilk Test Statistic	0.839
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.088	Mean	-1.341
SD	2.068	SD	1.59
95% DL/2 (t) UCL	1.847	95% H-Stat (DL/2) UCL	3.504
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.377
		SD in Log Scale	1.612
		Mean in Original Scale	1.085
		SD in Original Scale	2.07
		95% Percentile Bootstrap UCL	1.81
		95% BCA Bootstrap UCL	1.966
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.403	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	3.058		
nu star	15.32		
A-D Test Statistic	2.009	**Nonparametric Statistics**	
5% A-D Critical Value	0.815	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.815	Mean	1.08
5% K-S Critical Value	0.212	SD	2.024
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.443
		95% KM (t) UCL	1.843
Assuming Gamma Distribution		95% KM (z) UCL	1.809
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.84
Minimum	1E-09	95% KM (bootstrap t) UCL	2.473
Maximum	7.2	95% KM (BCA) UCL	1.908
Mean	1.125	95% KM (Percentile Bootstrap) UCL	1.833
Median	0.15	95% KM (Chebyshev) UCL	3.013
SD	2.059	97.5% KM (Chebyshev) UCL	3.849
k star	0.298	99% KM (Chebyshev) UCL	5.492
Theta star	3.776		
Nu star	13.11	**Potential UCLs to Use**	
AppChi2	5.966	99% KM (Chebyshev) UCL	5.492
95% Gamma Approximate UCL	2.472		
95% Adjusted Gamma UCL	2.629		

Note: DL/2 is not a recommended method.

Benzo(a)pyrene

General Statistics

Number of Valid Data	22	Number of Detected Data	18
Number of Distinct Detected Data	18	Number of Non-Detect Data	4
		Percent Non-Detects	18.18%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.058	Minimum Detected	-2.847
Maximum Detected	7.3	Maximum Detected	1.988
Mean of Detected	1.077	Mean of Detected	-1.372
SD of Detected	1.993	SD of Detected	1.635
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	5
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	77.27%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.59	Shapiro Wilk Test Statistic	0.8
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.909	Mean	-1.473
SD	1.83	SD	1.492
95% DL/2 (t) UCL	1.58	95% H-Stat (DL/2) UCL	2.416
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.491
		SD in Log Scale	1.503
		Mean in Original Scale	0.907
		SD in Original Scale	1.831
		95% Percentile Bootstrap UCL	1.589
		95% BCA Bootstrap UCL	1.802
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.409	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	2.631		
nu star	14.74		
A-D Test Statistic	2.256	**Nonparametric Statistics**	
5% A-D Critical Value	0.811	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.811	Mean	0.901
5% K-S Critical Value	0.217	SD	1.792
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.393
		95% KM (t) UCL	1.577
Assuming Gamma Distribution		95% KM (z) UCL	1.548
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.574
Minimum	0.058	95% KM (bootstrap t) UCL	2.486
Maximum	7.3	95% KM (BCA) UCL	1.592
Mean	1.015	95% KM (Percentile Bootstrap) UCL	1.598
Median	0.16	95% KM (Chebyshev) UCL	2.614
SD	1.804	97.5% KM (Chebyshev) UCL	3.356
k star	0.48	99% KM (Chebyshev) UCL	4.812
Theta star	2.114		
Nu star	21.14	**Potential UCLs to Use**	
AppChi2	11.69	99% KM (Chebyshev) UCL	4.812
95% Gamma Approximate UCL	1.835		
95% Adjusted Gamma UCL	1.921		

Note: DL/2 is not a recommended method.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	22	Number of Detected Data	19
Number of Distinct Detected Data	17	Number of Non-Detect Data	3
		Percent Non-Detects	13.64%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.065	Minimum Detected	-2.733
Maximum Detected	11	Maximum Detected	2.398
Mean of Detected	1.471	Mean of Detected	-1.017
SD of Detected	2.914	SD of Detected	1.59
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.55	Shapiro Wilk Test Statistic	0.838
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.294	Mean	-1.119
SD	2.736	SD	1.495
95% DL/2 (t) UCL	2.298	95% H-Stat (DL/2) UCL	3.28
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.111
		SD in Log Scale	1.501
		Mean in Original Scale	1.298
		SD in Original Scale	2.735
		95% Percentile Bootstrap UCL	2.308
		95% BCA Bootstrap UCL	2.672
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.421	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	3.491		
nu star	16.01		
A-D Test Statistic	2.081	**Nonparametric Statistics**	
5% A-D Critical Value	0.811	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.811	Mean	1.291
5% K-S Critical Value	0.211	SD	2.675
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.586
		95% KM (t) UCL	2.299
Assuming Gamma Distribution		95% KM (z) UCL	2.255
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.295
Minimum	1E-09	95% KM (bootstrap t) UCL	4.241
Maximum	11	95% KM (BCA) UCL	2.384
Mean	1.338	95% KM (Percentile Bootstrap) UCL	2.282
Median	0.21	95% KM (Chebyshev) UCL	3.845
SD	2.727	97.5% KM (Chebyshev) UCL	4.95
k star	0.303	99% KM (Chebyshev) UCL	7.121
Theta star	4.414		
Nu star	13.34	**Potential UCLs to Use**	
AppChi2	6.123	99% KM (Chebyshev) UCL	7.121
95% Gamma Approximate UCL	2.916		
95% Adjusted Gamma UCL	3.1		

Note: DL/2 is not a recommended method.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	22	Number of Detected Data	19
Number of Distinct Detected Data	17	Number of Non-Detect Data	3
		Percent Non-Detects	13.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.069	Minimum Detected	-2.674
Maximum Detected	6.3	Maximum Detected	1.841
Mean of Detected	0.861	Mean of Detected	-1.288
SD of Detected	1.618	SD of Detected	1.39
Minimum Non-Detect	0.34	Minimum Non-Detect	-1.079
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	6
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.557	Shapiro Wilk Test Statistic	0.836
5% Shapiro Wilk Critical Value	0.901	5% Shapiro Wilk Critical Value	0.901
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.767	Mean	-1.353
SD	1.518	SD	1.298
95% DL/2 (t) UCL	1.324	95% H-Stat (DL/2) UCL	1.556
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.37
		SD in Log Scale	1.312
		Mean in Original Scale	0.765
		SD in Original Scale	1.519
		95% Percentile Bootstrap UCL	1.358
		95% BCA Bootstrap UCL	1.533

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.498	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.728		
nu star	18.93		
A-D Test Statistic	2.125	**Nonparametric Statistics**	
5% A-D Critical Value	0.798	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.798	Mean	0.761
5% K-S Critical Value	0.209	SD	1.485
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.325
		95% KM (t) UCL	1.321
Assuming Gamma Distribution		95% KM (z) UCL	1.296
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.319
Minimum	1E-09	95% KM (bootstrap t) UCL	2.068
Maximum	6.3	95% KM (BCA) UCL	1.355
Mean	0.792	95% KM (Percentile Bootstrap) UCL	1.318
Median	0.17	95% KM (Chebyshev) UCL	2.18
SD	1.514	97.5% KM (Chebyshev) UCL	2.793
k star	0.336	99% KM (Chebyshev) UCL	3.999
Theta star	2.355		
Nu star	14.8	**Potential UCLs to Use**	
AppChi2	7.121	97.5% KM (Chebyshev) UCL	2.793
95% Gamma Approximate UCL	1.646		
95% Adjusted Gamma UCL	1.743		

Note: DL/2 is not a recommended method.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	22	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	12
		Percent Non-Detects	54.55%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.031	Minimum Detected	-3.474
Maximum Detected	0.6	Maximum Detected	-0.511
Mean of Detected	0.175	Mean of Detected	-2.152
SD of Detected	0.176	SD of Detected	0.95
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	2.1	Maximum Non-Detect	0.742

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	22
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.789	Shapiro Wilk Test Statistic	0.943
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.219	Mean	-1.838
SD	0.22	SD	0.799
95% DL/2 (t) UCL	0.299	95% H-Stat (DL/2) UCL	0.562
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.273
		SD in Log Scale	0.655
		Mean in Original Scale	0.132
		SD in Original Scale	0.124
		95% Percentile Bootstrap UCL	0.179
		95% BCA Bootstrap UCL	0.193

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	1.02	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.172	
nu star	20.4	
A-D Test Statistic	0.438	**Nonparametric Statistics**
5% A-D Critical Value	0.742	Kaplan-Meier (KM) Method
K-S Test Statistic	0.742	Mean 0.146
5% K-S Critical Value	0.272	SD 0.135
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 0.0377
		95% KM (t) UCL 0.211
Assuming Gamma Distribution		95% KM (z) UCL 0.208
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.212
Minimum	0.031	95% KM (bootstrap t) UCL 0.239
Maximum	0.6	95% KM (BCA) UCL 0.214
Mean	0.173	95% KM (Percentile Bootstrap) UCL 0.215
Median	0.175	95% KM (Chebyshev) UCL 0.311
SD	0.122	97.5% KM (Chebyshev) UCL 0.382
k star	2.171	99% KM (Chebyshev) UCL 0.522
Theta star	0.0799	
Nu star	95.51	**Potential UCLs to Use**
AppChi2	73.97	95% KM (t) UCL 0.211
95% Gamma Approximate UCL	0.224	
95% Adjusted Gamma UCL	0.228	

Note: DL/2 is not a recommended method.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	20	Number of Detected Data	16
Number of Distinct Detected Data	15	Number of Non-Detect Data	4
		Percent Non-Detects	20.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.043	Minimum Detected	-3.147
Maximum Detected	2.1	Maximum Detected	0.742
Mean of Detected	0.377	Mean of Detected	-1.796
SD of Detected	0.582	SD of Detected	1.224
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.35	Maximum Non-Detect	-1.05

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	80.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.627	Shapiro Wilk Test Statistic	0.875
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.332	Mean	-1.821
SD	0.526	SD	1.096
95% DL/2 (t) UCL	0.535	95% H-Stat (DL/2) UCL	0.748
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.326	Mean in Log Scale	-1.89
SD	0.617	SD in Log Scale	1.113
95% MLE (t) UCL	1.564	Mean in Original Scale	0.323
95% MLE (Tiku) UCL	1.846	SD in Original Scale	0.529
		95% Percentile Bootstrap UCL	0.528
		95% BCA Bootstrap UCL	0.622

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.637	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.591		
nu star	20.39		
A-D Test Statistic	1.38	**Nonparametric Statistics**	
5% A-D Critical Value	0.776	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.776	Mean	0.321
5% K-S Critical Value	0.223	SD	0.517
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.12
		95% KM (t) UCL	0.528
Assuming Gamma Distribution		95% KM (z) UCL	0.518
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.527
Minimum	0.043	95% KM (bootstrap t) UCL	0.874
Maximum	2.1	95% KM (BCA) UCL	0.574
Mean	0.374	95% KM (Percentile Bootstrap) UCL	0.527
Median	0.135	95% KM (Chebyshev) UCL	0.843
SD	0.518	97.5% KM (Chebyshev) UCL	1.069
k star	0.791	99% KM (Chebyshev) UCL	1.512
Theta star	0.473		
Nu star	31.62	**Potential UCLs to Use**	
AppChi2	19.77	97.5% KM (Chebyshev) UCL	1.069
95% Gamma Approximate UCL	0.598		
95% Adjusted Gamma UCL	0.622		

Note: DL/2 is not a recommended method.

Aroclor-1254 (PCB-1254)

General Statistics

Number of Valid Data	22	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	16
		Percent Non-Detects	72.73%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.043	Minimum Detected	-3.147
Maximum Detected	0.35	Maximum Detected	-1.05
Mean of Detected	0.124	Mean of Detected	-2.348
SD of Detected	0.115	SD of Detected	0.732
Minimum Non-Detect	0.034	Minimum Non-Detect	-3.381
Maximum Non-Detect	0.042	Maximum Non-Detect	-3.17

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	6
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	72.73%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.719	Shapiro Wilk Test Statistic	0.912
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0474	Mean	-3.535
SD	0.0736	SD	0.827
95% DL/2 (t) UCL	0.0744	95% H-Stat (DL/2) UCL	0.0479
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.432
		SD in Log Scale	1.46
		Mean in Original Scale	0.0386
		SD in Original Scale	0.0774
		95% Percentile Bootstrap UCL	0.0673
		95% BCA Bootstrap UCL	0.0847

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.147	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.108		
nu star	13.77		
A-D Test Statistic	0.529	**Nonparametric Statistics**	
5% A-D Critical Value	0.704	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.704	Mean	0.0651
5% K-S Critical Value	0.336	SD	0.0654
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0153
		95% KM (t) UCL	0.0914
Assuming Gamma Distribution		95% KM (z) UCL	0.0902
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.0866
Minimum	0.043	95% KM (bootstrap t) UCL	0.137
Maximum	0.35	95% KM (BCA) UCL	0.117
Mean	0.116	95% KM (Percentile Bootstrap) UCL	0.104
Median	0.112	95% KM (Chebyshev) UCL	0.132
SD	0.0683	97.5% KM (Chebyshev) UCL	0.16

TABLE D-2e1
ProUCL Output for Aggregate Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	3.236
Theta star	0.0357
Nu star	142.4
AppChi2	115.8
95% Gamma Approximate UCL	0.142
95% Adjusted Gamma UCL	0.144

99% KM (Chebyshev) UCL	0.217

Potential UCLs to Use

95% KM (t) UCL	0.0914

Note: DL/2 is not a recommended method.

Aroclor-1260 (PCB-1260)

General Statistics

Number of Valid Data	22	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	17
		Percent Non-Detects	77.27%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.068	Minimum Detected	-2.688
Maximum Detected	0.49	Maximum Detected	-0.713
Mean of Detected	0.191	Mean of Detected	-1.95
SD of Detected	0.178	SD of Detected	0.825
Minimum Non-Detect	0.034	Minimum Non-Detect	-3.381
Maximum Non-Detect	0.0465	Maximum Non-Detect	-3.068

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	17
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	5
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	77.27%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.782	Shapiro Wilk Test Statistic	0.887
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0581	Mean	-3.511
SD	0.107	SD	0.941
95% DL/2 (t) UCL	0.0974	95% H-Stat (DL/2) UCL	0.0514
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-4.768
		SD in Log Scale	1.83
		Mean in Original Scale	0.0479
		SD in Original Scale	0.111
		95% Percentile Bootstrap UCL	0.0903
		95% BCA Bootstrap UCL	0.107

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.866	**Data appear Normal at 5% Significance Level**	
Theta Star	0.221		
nu star	8.664		
A-D Test Statistic	0.469	**Nonparametric Statistics**	
5% A-D Critical Value	0.685	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.685	Mean	0.096
5% K-S Critical Value	0.361	SD	0.0917
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0219
		95% KM (t) UCL	0.134
Assuming Gamma Distribution		95% KM (z) UCL	0.132
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.126
Minimum	0.0393	95% KM (bootstrap t) UCL	0.341
Maximum	0.49	95% KM (BCA) UCL	0.245
Mean	0.173	95% KM (Percentile Bootstrap) UCL	0.157
Median	0.17	95% KM (Chebyshev) UCL	0.191
SD	0.107	97.5% KM (Chebyshev) UCL	0.233
k star	2.34	99% KM (Chebyshev) UCL	0.314
Theta star	0.0737		

TABLE D-2e1
ProUCL Output for Aggregate Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

Nu star	103	**Potential UCLs to Use**	
AppChi2	80.56	95% KM (t) UCL	0.134
95% Gamma Approximate UCL	0.221	95% KM (Percentile Bootstrap) UCL	0.157
95% Adjusted Gamma UCL	0.225		

Note: DL/2 is not a recommended method.

Vinyl chloride

General Statistics

Number of Valid Data	20	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	19
		Percent Non-Detects	95.00%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Vinyl chloride was not processed!

Aluminum

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	3730	Minimum of Log Data	8.224
Maximum	13100	Maximum of Log Data	9.48
Mean	7482	Mean of log Data	8.87
Median	7215	SD of log Data	0.329
SD	2424		
Coefficient of Variation	0.324		
Skewness	0.648		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.957	Shapiro Wilk Test Statistic	0.973
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	8395	95% H-UCL	8607
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9874
95% Adjusted-CLT UCL	8432	97.5% Chebyshev (MVUE) UCL	10905
95% Modified-t UCL	8407	99% Chebyshev (MVUE) UCL	12931

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	8.688	**Data appear Normal at 5% Significance Level**
Theta Star	861.2	
MLE of Mean	7482	
MLE of Standard Deviation	2538	
nu star	364.9	
Approximate Chi Square Value (.05)	321.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0383	95% CLT UCL 8352
Adjusted Chi Square Value	318.5	95% Jackknife UCL 8395
		95% Standard Bootstrap UCL 8340
Anderson-Darling Test Statistic	0.196	95% Bootstrap-t UCL 8483
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL 8481
Kolmogorov-Smirnov Test Statistic	0.0869	95% Percentile Bootstrap UCL 8385
Kolmogorov-Smirnov 5% Critical Value	0.189	95% BCA Bootstrap UCL 8475
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 9788
		97.5% Chebyshev(Mean, Sd) UCL 10785
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12745
95% Approximate Gamma UCL	8489	
95% Adjusted Gamma UCL	8572	

Potential UCL to Use		Use 95% Student's-t UCL	8395

Arsenic

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	17

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.2	Minimum of Log Data	0.182
Maximum	6.1	Maximum of Log Data	1.808
Mean	2.843	Mean of log Data	0.965
Median	2.7	SD of log Data	0.406
SD	1.23		
Coefficient of Variation	0.433		
Skewness	1.32		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.883	Shapiro Wilk Test Statistic	0.973
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.306	95% H-UCL	3.389
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3.961
95% Adjusted-CLT UCL	3.367	97.5% Chebyshev (MVUE) UCL	4.447
95% Modified-t UCL	3.319	99% Chebyshev (MVUE) UCL	5.402

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	5.52	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.515	
MLE of Mean	2.843	
MLE of Standard Deviation	1.21	
nu star	231.8	
Approximate Chi Square Value (.05)	197.6	**Nonparametric Statistics**
Adjusted Level of Significance	0.0383	95% CLT UCL 3.284
Adjusted Chi Square Value	195.2	95% Jackknife UCL 3.306
		95% Standard Bootstrap UCL 3.277
Anderson-Darling Test Statistic	0.381	95% Bootstrap-t UCL 3.456
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL 3.582
Kolmogorov-Smirnov Test Statistic	0.132	95% Percentile Bootstrap UCL 3.276
Kolmogorov-Smirnov 5% Critical Value	0.19	95% BCA Bootstrap UCL 3.35
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 4.013
		97.5% Chebyshev(Mean, Sd) UCL 4.519
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 5.513
95% Approximate Gamma UCL	3.336	
95% Adjusted Gamma UCL	3.377	

Potential UCL to Use	Use 95% Approximate Gamma UCL 3.336

Cobalt

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.1	Minimum of Log Data	0.742
Maximum	10.2	Maximum of Log Data	2.322
Mean	4.838	Mean of log Data	1.519
Median	4.6	SD of log Data	0.342
SD	1.809		
Coefficient of Variation	0.374		
Skewness	1.56		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.867	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.519	95% H-UCL	5.583
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.428
95% Adjusted-CLT UCL	5.631	97.5% Chebyshev (MVUE) UCL	7.121
95% Modified-t UCL	5.541	99% Chebyshev (MVUE) UCL	8.481

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	7.577	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.639		
MLE of Mean	4.838		
MLE of Standard Deviation	1.758		
nu star	318.2		
Approximate Chi Square Value (.05)	277.9	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0383	95% CLT UCL	5.487
Adjusted Chi Square Value	275	95% Jackknife UCL	5.519
		95% Standard Bootstrap UCL	5.497
Anderson-Darling Test Statistic	0.498	95% Bootstrap-t UCL	5.769
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL	6.331
Kolmogorov-Smirnov Test Statistic	0.128	95% Percentile Bootstrap UCL	5.502
Kolmogorov-Smirnov 5% Critical Value	0.19	95% BCA Bootstrap UCL	5.595
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.559
		97.5% Chebyshev(Mean, Sd) UCL	7.304
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.766
95% Approximate Gamma UCL	5.54		
95% Adjusted Gamma UCL	5.598		

Potential UCL to Use	Use 95% Approximate Gamma UCL	5.54

Iron

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	6060	Minimum of Log Data	8.709
Maximum	23400	Maximum of Log Data	10.06
Mean	12079	Mean of log Data	9.355
Median	11900	SD of log Data	0.301
SD	3841		
Coefficient of Variation	0.318		
Skewness	1.309		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.911	Shapiro Wilk Test Statistic	0.98
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13524	95% H-UCL	13683
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15572
95% Adjusted-CLT UCL	13713	97.5% Chebyshev (MVUE) UCL	17088
95% Modified-t UCL	13564	99% Chebyshev (MVUE) UCL	20066

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	9.923	**Data appear Normal at 5% Significance Level**
Theta Star	1217	
MLE of Mean	12079	
MLE of Standard Deviation	3835	
nu star	416.8	
Approximate Chi Square Value (.05)	370.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.0383	95% CLT UCL 13458
Adjusted Chi Square Value	367.1	95% Jackknife UCL 13524
		95% Standard Bootstrap UCL 13419
Anderson-Darling Test Statistic	0.3	95% Bootstrap-t UCL 13839
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL 14365
Kolmogorov-Smirnov Test Statistic	0.135	95% Percentile Bootstrap UCL 13445
Kolmogorov-Smirnov 5% Critical Value	0.189	95% BCA Bootstrap UCL 13736
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15732
		97.5% Chebyshev(Mean, Sd) UCL 17313
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20418
95% Approximate Gamma UCL	13590	
95% Adjusted Gamma UCL	13714	

Potential UCL to Use	Use 95% Student's-t UCL 13524

Manganese

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	140	Minimum of Log Data	4.942
Maximum	346	Maximum of Log Data	5.846
Mean	237.9	Mean of log Data	5.438
Median	238.5	SD of log Data	0.272
SD	61.22		
Coefficient of Variation	0.257		
Skewness	-0.0986		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Test Statistic	0.913
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	260.9	95% H-UCL	266.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	300.4
95% Adjusted-CLT UCL	259.5	97.5% Chebyshev (MVUE) UCL	327.3
95% Modified-t UCL	260.8	99% Chebyshev (MVUE) UCL	380.2

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	12.84	**Data appear Normal at 5% Significance Level**	
Theta Star	18.53		
MLE of Mean	237.9		
MLE of Standard Deviation	66.39		
nu star	539.1		
Approximate Chi Square Value (.05)	486.2	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0383	95% CLT UCL	259.8
Adjusted Chi Square Value	482.4	95% Jackknife UCL	260.9
		95% Standard Bootstrap UCL	259.3
Anderson-Darling Test Statistic	0.849	95% Bootstrap-t UCL	259.8
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL	258.7
Kolmogorov-Smirnov Test Statistic	0.212	95% Percentile Bootstrap UCL	258.9
Kolmogorov-Smirnov 5% Critical Value	0.189	95% BCA Bootstrap UCL	258.7
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	296.1
		97.5% Chebyshev(Mean, Sd) UCL	321.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	370.8
95% Approximate Gamma UCL	263.7		
95% Adjusted Gamma UCL	265.8		

Potential UCL to Use		Use 95% Student's-t UCL	260.9

Mercury

General Statistics

Number of Valid Data	21	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	14
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.051	Minimum Detected	-2.976
Maximum Detected	3.2	Maximum Detected	1.163
Mean of Detected	0.541	Mean of Detected	-1.901
SD of Detected	1.173	SD of Detected	1.413
Minimum Non-Detect	0.0585	Minimum Non-Detect	-2.839
Maximum Non-Detect	1.2	Maximum Non-Detect	0.182

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	20
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	95.24%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.485	Shapiro Wilk Test Statistic	0.731
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.346	Mean	-1.856
SD	0.677	SD	1.18
95% DL/2 (t) UCL	0.601	95% H-Stat (DL/2) UCL	0.507
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.621
		SD in Log Scale	0.982
		Mean in Original Scale	0.216
		SD in Original Scale	0.684
		95% Percentile Bootstrap UCL	0.51
		95% BCA Bootstrap UCL	0.667

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.378	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	1.431		
nu star	5.291		
A-D Test Statistic	1.396	**Nonparametric Statistics**	
5% A-D Critical Value	0.752	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.752	Mean	0.228
5% K-S Critical Value	0.327	SD	0.666
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.157
		95% KM (t) UCL	0.499
Assuming Gamma Distribution		95% KM (z) UCL	0.487
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.483
Minimum	1E-09	95% KM (bootstrap t) UCL	3.153
Maximum	3.2	95% KM (BCA) UCL	0.526
Mean	0.478	95% KM (Percentile Bootstrap) UCL	0.523
Median	0.432	95% KM (Chebyshev) UCL	0.913
SD	0.678	97.5% KM (Chebyshev) UCL	1.209

TABLE D-2e1
ProUCL Output for Aggregate Soil- Area E1
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	0.227	99% KM (Chebyshev) UCL	1.791
Theta star	2.105		
Nu star	9.531	**Potential UCLs to Use**	
AppChi2	3.651	95% KM (BCA) UCL	0.526
95% Gamma Approximate UCL	1.247		
95% Adjusted Gamma UCL	1.349		

Note: DL/2 is not a recommended method.

Vanadium

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	8.7	Minimum of Log Data	2.163
Maximum	774	Maximum of Log Data	6.652
Mean	72.8	Mean of log Data	3.573
Median	27.7	SD of log Data	0.955
SD	162.7		
Coefficient of Variation	2.235		
Skewness	4.398		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.352	Shapiro Wilk Test Statistic	0.862
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	134	95% H-UCL	95.93
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	109.8
95% Adjusted-CLT UCL	167.6	97.5% Chebyshev (MVUE) UCL	133.7
95% Modified-t UCL	139.7	99% Chebyshev (MVUE) UCL	180.6

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.741	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	98.27	
MLE of Mean	72.8	
MLE of Standard Deviation	84.58	
nu star	31.11	
Approximate Chi Square Value (.05)	19.37	**Nonparametric Statistics**
Adjusted Level of Significance	0.0383	95% CLT UCL 131.2
Adjusted Chi Square Value	18.66	95% Jackknife UCL 134
		95% Standard Bootstrap UCL 129.4
Anderson-Darling Test Statistic	2.387	95% Bootstrap-t UCL 388.1
Anderson-Darling 5% Critical Value	0.779	95% Hall's Bootstrap UCL 348.4
Kolmogorov-Smirnov Test Statistic	0.251	95% Percentile Bootstrap UCL 142.2
Kolmogorov-Smirnov 5% Critical Value	0.196	95% BCA Bootstrap UCL 204.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 227.6
		97.5% Chebyshev(Mean, Sd) UCL 294.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 426.1
95% Approximate Gamma UCL	116.9	
95% Adjusted Gamma UCL	121.4	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 227.6

Chromium

General Statistics

Number of Valid Observations	21	Number of Distinct Observations	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.5	Minimum of Log Data	1.504
Maximum	38.5	Maximum of Log Data	3.651
Mean	14.86	Mean of log Data	2.582
Median	13.5	SD of log Data	0.493
SD	7.913		
Coefficient of Variation	0.532		
Skewness	1.641		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.846	Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical Value	0.908	Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.84	95% H-UCL	18.57
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.04
95% Adjusted-CLT UCL	18.36	97.5% Chebyshev (MVUE) UCL	25.16
95% Modified-t UCL	17.94	99% Chebyshev (MVUE) UCL	31.28

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	3.83	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	3.881		
MLE of Mean	14.86		
MLE of Standard Deviation	7.594		
nu star	160.9		
Approximate Chi Square Value (.05)	132.5	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0383	95% CLT UCL	17.7
Adjusted Chi Square Value	130.6	95% Jackknife UCL	17.84
		95% Standard Bootstrap UCL	17.61
Anderson-Darling Test Statistic	0.501	95% Bootstrap-t UCL	19.12
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL	20.01
Kolmogorov-Smirnov Test Statistic	0.142	95% Percentile Bootstrap UCL	17.8
Kolmogorov-Smirnov 5% Critical Value	0.19	95% BCA Bootstrap UCL	18.54
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	22.39
		97.5% Chebyshev(Mean, Sd) UCL	25.65
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	32.04
95% Approximate Gamma UCL	18.04		
95% Adjusted Gamma UCL	18.31		

Potential UCL to Use		Use 95% Approximate Gamma UCL	18.04

Table D-2e2
ProUCL Output for Aggregate Soil- Area E2
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_E2-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)

General Statistics

Number of Valid Data	1	Number of Detected Data	0
Number of Distinct Detected Data	0	Number of Non-Detect Data	1
		Percent Non-Detects	100.00%

Warning: This data set only has 1 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Aluminum

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	2450	Minimum of Log Data	7.804
Maximum	9430	Maximum of Log Data	9.152
Mean	6776	Mean of log Data	8.771
Median	7375	SD of log Data	0.366
SD	1882		
Coefficient of Variation	0.278		
Skewness	-1.218		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.89	Shapiro Wilk Test Statistic	0.773
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7751	95% H-UCL	8581
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10044
95% Adjusted-CLT UCL (Chen-1995)	7465	97.5% Chebyshev (MVUE) UCL	11427
95% Modified-t UCL (Johnson-1978)	7719	99% Chebyshev (MVUE) UCL	14143

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.612	**Data appear Normal at 5% Significance Level**
Theta Star	890.1	
MLE of Mean	6776	
MLE of Standard Deviation	2456	
nu star	182.7	
Approximate Chi Square Value (.05)	152.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 7669
Adjusted Chi Square Value	148.2	95% Jackknife UCL 7751
		95% Standard Bootstrap UCL 7631
Anderson-Darling Test Statistic	1.002	95% Bootstrap-t UCL 7551
Anderson-Darling 5% Critical Value	0.73	95% Hall's Bootstrap UCL 7531
Kolmogorov-Smirnov Test Statistic	0.285	95% Percentile Bootstrap UCL 7597
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 7511
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 9143
		97.5% Chebyshev(Mean, Sd) UCL 10168

Table D-2e2
ProUCL Output for Aggregate Soil- Area E2
Scovill Industrial Landfill Site
Waterbury, Connecticut

Assuming Gamma Distribution	99% Chebyshev(Mean, Sd) UCL 12180
95% Approximate Gamma UCL 8121	
95% Adjusted Gamma UCL 8352	
Potential UCL to Use	Use 95% Student's-t UCL 7751

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Antimony

General Statistics

Number of Valid Data	9	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	8
		Percent Non-Detects	88.89%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Antimony was not processed!

Arsenic

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	9	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	8.1	Maximum Detected	2.092
Mean of Detected	3.345	Mean of Detected	1.032
SD of Detected	2.202	SD of Detected	0.613
Minimum Non-Detect	0.87	Minimum Non-Detect	-0.139
Maximum Non-Detect	0.87	Maximum Non-Detect	-0.139

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.838	Shapiro Wilk Test Statistic	0.95
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.103	Mean	0.877
SD	2.261	SD	0.794
95% DL/2 (t) UCL	4.275	95% H-Stat (DL/2) UCL	6.082
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.038	Mean in Log Scale	0.907
SD	2.273	SD in Log Scale	0.728
95% MLE (t) UCL	4.216	Mean in Original Scale	3.119
95% MLE (Tiku) UCL	4.185	SD in Original Scale	2.241
		95% t UCL	4.281
		95% Percentile Bootstrap UCL	4.202
		95% BCA Bootstrap UCL	4.435

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	2.244	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.491	
nu star	49.37	
A-D Test Statistic	0.369	**Nonparametric Statistics**
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method
K-S Test Statistic	0.734	Mean 3.167
5% K-S Critical Value	0.257	SD 2.095
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 0.634
		95% KM (t) UCL 4.306
Assuming Gamma Distribution		95% KM (z) UCL 4.21
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 4.297
Minimum	1E-12	95% KM (bootstrap t) UCL 5.167
Maximum	8.1	95% KM (BCA) UCL 4.242
Mean	3.067	95% KM (Percentile Bootstrap) UCL 4.258
Median	2.7	95% KM (Chebyshev) UCL 5.932
SD	2.311	97.5% KM (Chebyshev) UCL 7.129
k star	0.267	99% KM (Chebyshev) UCL 9.479
Theta star	11.51	
Nu star	6.397	**Potential UCLs to Use**
AppChi2	1.846	95% KM (BCA) UCL 4.242
95% Gamma Approximate UCL	10.63	
95% Adjusted Gamma UCL	13.1	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.09	Minimum Detected	-2.408
Maximum Detected	2.9	Maximum Detected	1.065
Mean of Detected	0.772	Mean of Detected	-0.749
SD of Detected	0.849	SD of Detected	1.062
Minimum Non-Detect	0.24	Minimum Non-Detect	-1.427
Maximum Non-Detect	0.24	Maximum Non-Detect	-1.427

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.749	Shapiro Wilk Test Statistic	0.953
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.718	Mean	-0.863
SD	0.831	SD	1.087
95% DL/2 (t) UCL	1.148	95% H-Stat (DL/2) UCL	2.089
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.511	Mean in Log Scale	-0.855
SD	1.037	SD in Log Scale	1.078
95% MLE (t) UCL	1.049	Mean in Original Scale	0.719
95% MLE (Tiku) UCL	1.087	SD in Original Scale	0.831
		95% t UCL	1.149
		95% Percentile Bootstrap UCL	1.115
		95% BCA Bootstrap UCL	1.259

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.904	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.854		
nu star	19.88		
A-D Test Statistic	0.396	**Nonparametric Statistics**	
5% A-D Critical Value	0.749	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.749	Mean	0.718
5% K-S Critical Value	0.262	SD	0.796
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.241
		95% KM (t) UCL	1.15
Assuming Gamma Distribution		95% KM (z) UCL	1.114
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.149
Minimum	0.00912	95% KM (bootstrap t) UCL	1.88
Maximum	2.9	95% KM (BCA) UCL	1.134
Mean	0.708	95% KM (Percentile Bootstrap) UCL	1.135
Median	0.475	95% KM (Chebyshev) UCL	1.768
SD	0.839	97.5% KM (Chebyshev) UCL	2.222
k star	0.662	99% KM (Chebyshev) UCL	3.115
Theta star	1.07		
Nu star	15.89	**Potential UCLs to Use**	
AppChi2	7.886	95% KM (Chebyshev) UCL	1.768
95% Gamma Approximate UCL	1.427		
95% Adjusted Gamma UCL	1.598		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.081	Minimum Detected	-2.513
Maximum Detected	3.3	Maximum Detected	1.194
Mean of Detected	0.816	Mean of Detected	-0.722
SD of Detected	0.924	SD of Detected	1.113
Minimum Non-Detect	0.24	Minimum Non-Detect	-1.427
Maximum Non-Detect	0.24	Maximum Non-Detect	-1.427

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.743	Shapiro Wilk Test Statistic	0.973
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.758	Mean	-0.838
SD	0.904	SD	1.135
95% DL/2 (t) UCL	1.226	95% H-Stat (DL/2) UCL	2.436
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.53	Mean in Log Scale	-0.834
SD	1.129	SD in Log Scale	1.13
95% MLE (t) UCL	1.115	Mean in Original Scale	0.758
95% MLE (Tiku) UCL	1.156	SD in Original Scale	0.904
		95% t UCL	1.226
		95% Percentile Bootstrap UCL	1.199
		95% BCA Bootstrap UCL	1.4

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.863	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.945		
nu star	18.98		
A-D Test Statistic	0.238	**Nonparametric Statistics**	
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.75	Mean	0.758
5% K-S Critical Value	0.262	SD	0.865
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.262
		95% KM (t) UCL	1.228
Assuming Gamma Distribution		95% KM (z) UCL	1.189
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.226
Minimum	1E-12	95% KM (bootstrap t) UCL	1.797
Maximum	3.3	95% KM (BCA) UCL	1.234
Mean	0.748	95% KM (Percentile Bootstrap) UCL	1.169
Median	0.53	95% KM (Chebyshev) UCL	1.9
SD	0.912	97.5% KM (Chebyshev) UCL	2.394
k star	0.253	99% KM (Chebyshev) UCL	3.365
Theta star	2.953		
Nu star	6.076	**Potential UCLs to Use**	
AppChi2	1.679	95% KM (Chebyshev) UCL	1.9
95% Gamma Approximate UCL	2.706		
95% Adjusted Gamma UCL	3.36		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.1	Minimum Detected	-2.303
Maximum Detected	4	Maximum Detected	1.386
Mean of Detected	1.104	Mean of Detected	-0.434
SD of Detected	1.208	SD of Detected	1.137
Minimum Non-Detect	0.24	Minimum Non-Detect	-1.427
Maximum Non-Detect	0.24	Maximum Non-Detect	-1.427

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.772	Shapiro Wilk Test Statistic	0.956
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.022	Mean	-0.574
SD	1.186	SD	1.189
95% DL/2 (t) UCL	1.637	95% H-Stat (DL/2) UCL	3.684
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.702	Mean in Log Scale	-0.548
SD	1.511	SD in Log Scale	1.154
95% MLE (t) UCL	1.485	Mean in Original Scale	1.025
95% MLE (Tiku) UCL	1.543	SD in Original Scale	1.183
		95% t UCL	1.639
		95% Percentile Bootstrap UCL	1.62
		95% BCA Bootstrap UCL	1.783

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.843	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.31		
nu star	18.54		
A-D Test Statistic	0.358	**Nonparametric Statistics**	
5% A-D Critical Value	0.75	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.75	Mean	1.025
5% K-S Critical Value	0.262	SD	1.133
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.343
		95% KM (t) UCL	1.641
Assuming Gamma Distribution		95% KM (z) UCL	1.589
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.638
Minimum	1E-12	95% KM (bootstrap t) UCL	2.473
Maximum	4	95% KM (BCA) UCL	1.623
Mean	1.012	95% KM (Percentile Bootstrap) UCL	1.618
Median	0.635	95% KM (Chebyshev) UCL	2.52
SD	1.195	97.5% KM (Chebyshev) UCL	3.168
k star	0.251	99% KM (Chebyshev) UCL	4.439
Theta star	4.035		
Nu star	6.018	**Potential UCLs to Use**	
AppChi2	1.649	95% KM (Chebyshev) UCL	2.52
95% Gamma Approximate UCL	3.692		
95% Adjusted Gamma UCL	4.592		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.12	Minimum Detected	-2.12
Maximum Detected	2.2	Maximum Detected	0.788
Mean of Detected	0.728	Mean of Detected	-0.661
SD of Detected	0.605	SD of Detected	0.936
Minimum Non-Detect	0.24	Minimum Non-Detect	-1.427
Maximum Non-Detect	0.24	Maximum Non-Detect	-1.427

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.859	Shapiro Wilk Test Statistic	0.931
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.678	Mean	-0.783
SD	0.603	SD	0.986
95% DL/2 (t) UCL	0.99	95% H-Stat (DL/2) UCL	1.757
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.542	Mean in Log Scale	-0.755
SD	0.754	SD in Log Scale	0.949
95% MLE (t) UCL	0.933	Mean in Original Scale	0.682
95% MLE (Tiku) UCL	0.965	SD in Original Scale	0.599
		95% t UCL	0.992
		95% Percentile Bootstrap UCL	0.978
		95% BCA Bootstrap UCL	1.033

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.224	**Data appear Normal at 5% Significance Level**	
Theta Star	0.595		
nu star	26.93		
A-D Test Statistic	0.275	**Nonparametric Statistics**	
5% A-D Critical Value	0.742	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.742	Mean	0.68
5% K-S Critical Value	0.259	SD	0.575
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.174
		95% KM (t) UCL	0.993
Assuming Gamma Distribution		95% KM (z) UCL	0.966
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.992
Minimum	0.12	95% KM (bootstrap t) UCL	1.152
Maximum	2.2	95% KM (BCA) UCL	0.975
Mean	0.68	95% KM (Percentile Bootstrap) UCL	0.971
Median	0.62	95% KM (Chebyshev) UCL	1.439
SD	0.601	97.5% KM (Chebyshev) UCL	1.768
k star	1.148	99% KM (Chebyshev) UCL	2.413
Theta star	0.592		
Nu star	27.55	**Potential UCLs to Use**	
AppChi2	16.58	95% KM (t) UCL	0.993
95% Gamma Approximate UCL	1.129	95% KM (Percentile Bootstrap) UCL	0.971
95% Adjusted Gamma UCL	1.224		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.25	Minimum Detected	-1.386
Maximum Detected	12.9	Maximum Detected	2.557
Mean of Detected	2.571	Mean of Detected	0.0593
SD of Detected	4.113	SD of Detected	1.296
Minimum Non-Detect	0.0896	Minimum Non-Detect	-2.412
Maximum Non-Detect	0.0896	Maximum Non-Detect	-2.412

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.614	Shapiro Wilk Test Statistic	0.889
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.36	Mean	-0.204
SD	3.989	SD	1.536
95% DL/2 (t) UCL	4.428	95% H-Stat (DL/2) UCL	16.7
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	2.148	Mean in Log Scale	-0.199
SD	4.053	SD in Log Scale	1.526
95% MLE (t) UCL	4.25	Mean in Original Scale	2.361
95% MLE (Tiku) UCL	4.104	SD in Original Scale	3.989
		95% t UCL	4.428
		95% Percentile Bootstrap UCL	4.313
		95% BCA Bootstrap UCL	4.637

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.559	**Data appear Lognormal at 5% Significance Level**	
Theta Star	4.601		
nu star	12.29		
A-D Test Statistic	1.02	**Nonparametric Statistics**	
5% A-D Critical Value	0.767	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.767	Mean	2.378
5% K-S Critical Value	0.266	SD	3.809
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.153
		95% KM (t) UCL	4.449
Assuming Gamma Distribution		95% KM (z) UCL	4.274
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.438
Minimum	1E-12	95% KM (bootstrap t) UCL	14.52
Maximum	12.9	95% KM (BCA) UCL	4.357
Mean	2.357	95% KM (Percentile Bootstrap) UCL	4.425
Median	0.735	95% KM (Chebyshev) UCL	7.404
SD	3.991	97.5% KM (Chebyshev) UCL	9.579
k star	0.229	99% KM (Chebyshev) UCL	13.85
Theta star	10.28		
Nu star	5.501	**Potential UCLs to Use**	
AppChi2	1.391	97.5% KM (Chebyshev) UCL	9.579
95% Gamma Approximate UCL	9.323		
95% Adjusted Gamma UCL	11.76		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	12	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	5
		Percent Non-Detects	41.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.036	Minimum Detected	-3.324
Maximum Detected	0.44	Maximum Detected	-0.821
Mean of Detected	0.181	Mean of Detected	-2.039
SD of Detected	0.162	SD of Detected	0.877
Minimum Non-Detect	0.18	Minimum Non-Detect	-1.715
Maximum Non-Detect	0.4	Maximum Non-Detect	-0.916

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.67%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.745	Shapiro Wilk Test Statistic	0.869
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.164	Mean	-2.035
SD	0.126	SD	0.687
95% DL/2 (t) UCL	0.229	95% H-Stat (DL/2) UCL	0.271
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.187
		SD in Log Scale	0.674
		Mean in Original Scale	0.144
		SD in Original Scale	0.128
		95% t UCL	0.21
		95% Percentile Bootstrap UCL	0.204
		95% BCA Bootstrap UCL	0.226

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.042	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.174		
nu star	14.58		
A-D Test Statistic	0.737	**Nonparametric Statistics**	
5% A-D Critical Value	0.719	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.719	Mean	0.145
5% K-S Critical Value	0.316	SD	0.127
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0411
		95% KM (t) UCL	0.219
Assuming Gamma Distribution		95% KM (z) UCL	0.212
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.217
Minimum	0.036	95% KM (bootstrap t) UCL	0.382
Maximum	0.44	95% KM (BCA) UCL	0.219
Mean	0.182	95% KM (Percentile Bootstrap) UCL	0.215
Median	0.181	95% KM (Chebyshev) UCL	0.324

Table D-2e2
ProUCL Output for Aggregate Soil- Area E2
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.12	97.5% KM (Chebyshev) UCL	0.401
k star	2.112	99% KM (Chebyshev) UCL	0.553
Theta star	0.086		
Nu star	50.69	**Potential UCLs to Use**	
AppChi2	35.34	95% KM (t) UCL	0.219
95% Gamma Approximate UCL	0.261	95% KM (% Bootstrap) UCL	0.215
95% Adjusted Gamma UCL	0.276		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.1	Minimum of Log Data	1.629
Maximum	14.7	Maximum of Log Data	2.688
Mean	11.71	Mean of log Data	2.429
Median	12.3	SD of log Data	0.284
SD	2.615		
Coefficient of Variation	0.223		
Skewness	-1.449		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.88	Shapiro Wilk Test Statistic	0.76
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	13.06	95% H-UCL	13.92
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16.01
95% Adjusted-CLT UCL (Chen-1995)	12.61	97.5% Chebyshev (MVUE) UCL	17.85
95% Modified-t UCL (Johnson-1978)	13.01	99% Chebyshev (MVUE) UCL	21.45

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	12.23	**Data appear Normal at 5% Significance Level**
Theta Star	0.957	
MLE of Mean	11.71	
MLE of Standard Deviation	3.347	
nu star	293.6	
Approximate Chi Square Value (.05)	254.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 12.95
Adjusted Chi Square Value	249.4	95% Jackknife UCL 13.06
		95% Standard Bootstrap UCL 12.91
Anderson-Darling Test Statistic	0.8	95% Bootstrap-t UCL 12.75
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 12.73
Kolmogorov-Smirnov Test Statistic	0.198	95% Percentile Bootstrap UCL 12.81
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL 12.61
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15
		97.5% Chebyshev(Mean, Sd) UCL 16.42
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 19.22
95% Approximate Gamma UCL	13.49	
95% Adjusted Gamma UCL	13.78	

Potential UCL to Use	Use 95% Student's-t UCL 13.06

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.6	Minimum of Log Data	0.956
Maximum	6.3	Maximum of Log Data	1.841
Mean	4.408	Mean of log Data	1.449
Median	4.45	SD of log Data	0.278
SD	1.181		
Coefficient of Variation	0.268		
Skewness	0.124		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.964	Shapiro Wilk Test Statistic	0.963
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.021	95% H-UCL	5.194
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	5.968
95% Adjusted-CLT UCL (Chen-1995)	4.982	97.5% Chebyshev (MVUE) UCL	6.641
95% Modified-t UCL (Johnson-1978)	5.023	99% Chebyshev (MVUE) UCL	7.963

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	11.06	**Data appear Normal at 5% Significance Level**	
Theta Star	0.398		
MLE of Mean	4.408		
MLE of Standard Deviation	1.325		
nu star	265.5		
Approximate Chi Square Value (.05)	228.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	4.969
Adjusted Chi Square Value	223.6	95% Jackknife UCL	5.021
		95% Standard Bootstrap UCL	4.934
Anderson-Darling Test Statistic	0.212	95% Bootstrap-t UCL	5.032
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL	4.959
Kolmogorov-Smirnov Test Statistic	0.14	95% Percentile Bootstrap UCL	4.95
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL	4.933
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	5.895
		97.5% Chebyshev(Mean, Sd) UCL	6.538
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	7.801
95% Approximate Gamma UCL	5.116		
95% Adjusted Gamma UCL	5.235		

Potential UCL to Use	Use 95% Student's-t UCL	5.021

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	12	Number of Detected Data	9
Number of Distinct Detected Data	8	Number of Non-Detect Data	3
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.02	Minimum Detected	-3.912
Maximum Detected	0.24	Maximum Detected	-1.427
Mean of Detected	0.13	Mean of Detected	-2.3
SD of Detected	0.0819	SD of Detected	0.852
Minimum Non-Detect	0.24	Minimum Non-Detect	-1.427
Maximum Non-Detect	0.4	Maximum Non-Detect	-0.916

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.926	Shapiro Wilk Test Statistic	0.903
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.14	Mean	-2.174
SD	0.0746	SD	0.771
95% DL/2 (t) UCL	0.178	95% H-Stat (DL/2) UCL	0.275
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.331
		SD in Log Scale	0.731
		Mean in Original Scale	0.12
		SD in Original Scale	0.0724
		95% t UCL	0.157
		95% Percentile Bootstrap UCL	0.152
		95% BCA Bootstrap UCL	0.155

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.47	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0882		
nu star	26.46		
A-D Test Statistic	0.328	**Nonparametric Statistics**	
5% A-D Critical Value	0.729	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.729	Mean	0.127
5% K-S Critical Value	0.282	SD	0.076
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0263
		95% KM (t) UCL	0.174
Assuming Gamma Distribution		95% KM (z) UCL	0.17
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.174
Minimum	0.02	95% KM (bootstrap t) UCL	0.173
Maximum	0.24	95% KM (BCA) UCL	0.166
Mean	0.132	95% KM (Percentile Bootstrap) UCL	0.169
Median	0.135	95% KM (Chebyshev) UCL	0.241

SD	0.0703	97.5% KM (Chebyshev) UCL	0.291
k star	2.1	99% KM (Chebyshev) UCL	0.388
Theta star	0.0627		
Nu star	50.4	**Potential UCLs to Use**	
AppChi2	35.1	95% KM (t) UCL	0.174
95% Gamma Approximate UCL	0.189	95% KM (Percentile Bootstrap) UCL	0.169
95% Adjusted Gamma UCL	0.2		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	12	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	11
		Percent Non-Detects	91.67%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Di-n-octyl phthalate was not processed!

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.078	Minimum Detected	-2.551
Maximum Detected	1.6	Maximum Detected	0.47
Mean of Detected	0.424	Mean of Detected	-1.279
SD of Detected	0.441	SD of Detected	0.966
Minimum Non-Detect	0.24	Minimum Non-Detect	-1.427
Maximum Non-Detect	0.24	Maximum Non-Detect	-1.427

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.753	Shapiro Wilk Test Statistic	0.941
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.399	Mean	-1.349
SD	0.429	SD	0.953
95% DL/2 (t) UCL	0.621	95% H-Stat (DL/2) UCL	0.921
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.203	Mean in Log Scale	-1.346
SD	0.624	SD in Log Scale	0.95
95% MLE (t) UCL	0.526	Mean in Original Scale	0.399
95% MLE (Tiku) UCL	0.602	SD in Original Scale	0.429
		95% t UCL	0.622
		95% Percentile Bootstrap UCL	0.616
		95% BCA Bootstrap UCL	0.689

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.028	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.413		
nu star	22.61		
A-D Test Statistic	0.382	**Nonparametric Statistics**	
5% A-D Critical Value	0.745	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.745	Mean	0.399
5% K-S Critical Value	0.261	SD	0.411
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.125
		95% KM (t) UCL	0.622
Assuming Gamma Distribution		95% KM (z) UCL	0.604
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.622
Minimum	0.078	95% KM (bootstrap t) UCL	0.816
Maximum	1.6	95% KM (BCA) UCL	0.635
Mean	0.4	95% KM (Percentile Bootstrap) UCL	0.613
Median	0.255	95% KM (Chebyshev) UCL	0.942
SD	0.428	97.5% KM (Chebyshev) UCL	1.177
k star	1.054	99% KM (Chebyshev) UCL	1.638
Theta star	0.38		
Nu star	25.31	**Potential UCLs to Use**	
AppChi2	14.85	95% KM (Chebyshev) UCL	0.942
95% Gamma Approximate UCL	0.682		
95% Adjusted Gamma UCL	0.743		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	2420	Minimum of Log Data	7.792
Maximum	14800	Maximum of Log Data	9.602
Mean	10678	Mean of log Data	9.199
Median	10700	SD of log Data	0.481
SD	3334		
Coefficient of Variation	0.312		
Skewness	-1.292		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.88	Shapiro Wilk Test Statistic	0.685
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12407	95% H-UCL	15087
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17775
95% Adjusted-CLT UCL (Chen-1995)	11878	97.5% Chebyshev (MVUE) UCL	20714
95% Modified-t UCL (Johnson-1978)	12347	99% Chebyshev (MVUE) UCL	26488

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	5.041	**Data appear Normal at 5% Significance Level**
Theta Star	2118	
MLE of Mean	10678	
MLE of Standard Deviation	4756	
nu star	121	
Approximate Chi Square Value (.05)	96.59	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 12261
Adjusted Chi Square Value	93.26	95% Jackknife UCL 12407
		95% Standard Bootstrap UCL 12207
Anderson-Darling Test Statistic	1.109	95% Bootstrap-t UCL 12062
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL 12056
Kolmogorov-Smirnov Test Statistic	0.293	95% Percentile Bootstrap UCL 12088
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 11908
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 14874
		97.5% Chebyshev(Mean, Sd) UCL 16689
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20255
95% Approximate Gamma UCL	13376	
95% Adjusted Gamma UCL	13853	

Potential UCL to Use	Use 95% Student's-t UCL 12407

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.4	Minimum of Log Data	1.686
Maximum	749	Maximum of Log Data	6.619
Mean	124.7	Mean of log Data	4.244
Median	73.75	SD of log Data	1.092
SD	198.7		
Coefficient of Variation	1.593		
Skewness	3.332		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.465	Shapiro Wilk Test Statistic	0.826
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	227.7	95% H-UCL	348.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	292.1
95% Adjusted-CLT UCL (Chen-1995)	278	97.5% Chebyshev (MVUE) UCL	367.5
95% Modified-t UCL (Johnson-1978)	236.9	99% Chebyshev (MVUE) UCL	515.6

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.8	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	155.9	
MLE of Mean	124.7	
MLE of Standard Deviation	139.5	
nu star	19.2	
Approximate Chi Square Value (.05)	10.26	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 219.1
Adjusted Chi Square Value	9.282	95% Jackknife UCL 227.7
		95% Standard Bootstrap UCL 218.9
Anderson-Darling Test Statistic	1.415	95% Bootstrap-t UCL 664.7
Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL 741.3
Kolmogorov-Smirnov Test Statistic	0.298	95% Percentile Bootstrap UCL 233.7
Kolmogorov-Smirnov 5% Critical Value	0.252	95% BCA Bootstrap UCL 290.8
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 374.8
		97.5% Chebyshev(Mean, Sd) UCL 482.9
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 695.4
95% Approximate Gamma UCL	233.3	
95% Adjusted Gamma UCL	258	

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	374.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	54.2	Minimum of Log Data	3.993
Maximum	227	Maximum of Log Data	5.425
Mean	166.4	Mean of log Data	5.058
Median	177.5	SD of log Data	0.39
SD	48.4		
Coefficient of Variation	0.291		
Skewness	-1.089		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Test Statistic	0.784
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	191.5	95% H-UCL	215.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	252.6
95% Adjusted-CLT UCL (Chen-1995)	184.7	97.5% Chebyshev (MVUE) UCL	288.9
95% Modified-t UCL (Johnson-1978)	190.8	99% Chebyshev (MVUE) UCL	360.2

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	6.847	**Data appear Normal at 5% Significance Level**	
Theta Star	24.31		
MLE of Mean	166.4		
MLE of Standard Deviation	63.6		
nu star	164.3		
Approximate Chi Square Value (.05)	135.7	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	189.4
Adjusted Chi Square Value	131.7	95% Jackknife UCL	191.5
		95% Standard Bootstrap UCL	188.3
Anderson-Darling Test Statistic	0.742	95% Bootstrap-t UCL	187.6
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL	186
Kolmogorov-Smirnov Test Statistic	0.25	95% Percentile Bootstrap UCL	187.1
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL	184.8
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	227.3
		97.5% Chebyshev(Mean, Sd) UCL	253.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	305.4
95% Approximate Gamma UCL	201.6		
95% Adjusted Gamma UCL	207.6		

Potential UCL to Use		Use 95% Student's-t UCL	191.5

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Table D-2e2
ProUCL Output for Aggregate Soil- Area E2
Scovill Industrial Landfill Site
Waterbury, Connecticut

Vanadium

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	14.3	Minimum of Log Data	2.66
Maximum	38.1	Maximum of Log Data	3.64
Mean	23.57	Mean of log Data	3.104
Median	21.1	SD of log Data	0.347
SD	8.358		
Coefficient of Variation	0.355		
Skewness	0.596		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.888	Shapiro Wilk Test Statistic	0.914
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	27.9	95% H-UCL	29.09
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	33.95
95% Adjusted-CLT UCL (Chen-1995)	27.98	97.5% Chebyshev (MVUE) UCL	38.46
95% Modified-t UCL (Johnson-1978)	27.97	99% Chebyshev (MVUE) UCL	47.31

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	6.873	**Data appear Normal at 5% Significance Level**	
Theta Star	3.429		
MLE of Mean	23.57		
MLE of Standard Deviation	8.989		
nu star	165		
Approximate Chi Square Value (.05)	136.3	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	27.54
Adjusted Chi Square Value	132.3	95% Jackknife UCL	27.9
		95% Standard Bootstrap UCL	27.32
Anderson-Darling Test Statistic	0.501	95% Bootstrap-t UCL	28.51
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL	27.37
Kolmogorov-Smirnov Test Statistic	0.179	95% Percentile Bootstrap UCL	27.44
Kolmogorov-Smirnov 5% Critical Value	0.245	95% BCA Bootstrap UCL	27.72
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	34.08
		97.5% Chebyshev(Mean, Sd) UCL	38.64
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	47.57
95% Approximate Gamma UCL	28.53		
95% Adjusted Gamma UCL	29.39		

Potential UCL to Use	Use 95% Student's-t UCL	27.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Table D-2e3
ProUCL Output for Aggregate Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_E3-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	3760	Minimum of Log Data	8.232
Maximum	12000	Maximum of Log Data	9.393
Mean	8482	Mean of log Data	8.991
Median	8110	SD of log Data	0.359
SD	2607		
Coefficient of Variation	0.307		
Skewness	-0.459		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.925	Shapiro Wilk Test Statistic	0.872
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9551	95% H-UCL	10106
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11741
95% Adjusted-CLT UCL (Chen-1995)	9422	97.5% Chebyshev (MVUE) UCL	13129
95% Modified-t UCL (Johnson-1978)	9540	99% Chebyshev (MVUE) UCL	15855

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.815	**Data appear Normal at 5% Significance Level**
Theta Star	1085	
MLE of Mean	8482	
MLE of Standard Deviation	3034	
nu star	281.3	
Approximate Chi Square Value (.05)	243.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 9493
Adjusted Chi Square Value	240.1	95% Jackknife UCL 9551
		95% Standard Bootstrap UCL 9468
Anderson-Darling Test Statistic	0.723	95% Bootstrap-t UCL 9477
Anderson-Darling 5% Critical Value	0.74	95% Hall's Bootstrap UCL 9431
Kolmogorov-Smirnov Test Statistic	0.187	95% Percentile Bootstrap UCL 9411
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL 9392
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 11161
		97.5% Chebyshev(Mean, Sd) UCL 12320
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 14596
95% Approximate Gamma UCL	9800	
95% Adjusted Gamma UCL	9938	

Potential UCL to Use		Use 95% Student's-t UCL	9551

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Antimony

General Statistics

Number of Valid Data	15	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	13
		Percent Non-Detects	86.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.87	Minimum Detected	-0.139
Maximum Detected	7.6	Maximum Detected	2.028
Mean of Detected	4.235	Mean of Detected	0.944
SD of Detected	4.759	SD of Detected	1.533
Minimum Non-Detect	0.46	Minimum Non-Detect	-0.777
Maximum Non-Detect	1.1	Maximum Non-Detect	0.0953

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	93.33%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.83	Mean	-0.94
SD	1.881	SD	0.91
95% DL/2 (t) UCL	1.685	95% H-Stat (DL/2) UCL	1.113
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	N/A	
nu star	N/A	
A-D Test Statistic	N/A	**Nonparametric Statistics**
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method
K-S Test Statistic	N/A	Mean 1.319
5% K-S Critical Value	N/A	SD 1.679
Data not Gamma Distributed at 5% Significance Level		SE of Mean 0.613

Table D-2e3
ProUCL Output for Aggregate Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

		95% KM (t) UCL	2.398
Assuming Gamma Distribution		95% KM (z) UCL	2.327
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.846
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	7.6
Mean	N/A	95% KM (Percentile Bootstrap) UCL	7.6
Median	N/A	95% KM (Chebyshev) UCL	3.991
SD	N/A	97.5% KM (Chebyshev) UCL	5.147
k star	N/A	99% KM (Chebyshev) UCL	7.418
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	97.5% KM (Chebyshev) UCL	5.147
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.6	Minimum of Log Data	0.47
Maximum	8.1	Maximum of Log Data	2.092
Mean	4.211	Mean of log Data	1.323
Median	4.3	SD of log Data	0.503
SD	1.999		
Coefficient of Variation	0.475		
Skewness	0.406		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.925	Shapiro Wilk Test Statistic	0.936
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	5.031	95% H-UCL	5.455
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	6.49
95% Adjusted-CLT UCL (Chen-1995)	5.034	97.5% Chebyshev (MVUE) UCL	7.468
95% Modified-t UCL (Johnson-1978)	5.038	99% Chebyshev (MVUE) UCL	9.389

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.814	**Data appear Normal at 5% Significance Level**
Theta Star	1.104	
MLE of Mean	4.211	
MLE of Standard Deviation	2.156	
nu star	137.3	
Approximate Chi Square Value (.05)	111.2	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 4.986
Adjusted Chi Square Value	109	95% Jackknife UCL 5.031
		95% Standard Bootstrap UCL 4.977
Anderson-Darling Test Statistic	0.528	95% Bootstrap-t UCL 5.139
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL 5.01
Kolmogorov-Smirnov Test Statistic	0.173	95% Percentile Bootstrap UCL 4.978
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL 4.939
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 6.265
		97.5% Chebyshev(Mean, Sd) UCL 7.154
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.899
95% Approximate Gamma UCL	5.198	
95% Adjusted Gamma UCL	5.306	

Potential UCL to Use	Use 95% Student's-t UCL 5.031

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	14	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.061	Minimum Detected	-2.797
Maximum Detected	3.4	Maximum Detected	1.224
Mean of Detected	0.603	Mean of Detected	-1.01
SD of Detected	0.799	SD of Detected	1.008
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.596	Shapiro Wilk Test Statistic	0.976
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.579	Mean	-1.05
SD	0.78	SD	0.99
95% DL/2 (t) UCL	0.909	95% H-Stat (DL/2) UCL	1.102
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.113	Mean in Log Scale	-1.053
SD	1.196	SD in Log Scale	0.992
95% MLE (t) UCL	0.619	Mean in Original Scale	0.578
95% MLE (Tiku) UCL	0.768	SD in Original Scale	0.781
		95% t UCL	0.909
		95% Percentile Bootstrap UCL	0.93
		95% BCA Bootstrap UCL	1.137

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.958	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.629	
nu star	30.67	
A-D Test Statistic	0.511	**Nonparametric Statistics**
5% A-D Critical Value	0.761	Kaplan-Meier (KM) Method
K-S Test Statistic	0.761	Mean 0.579
5% K-S Critical Value	0.221	SD 0.757
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 0.19
		95% KM (t) UCL 0.911
Assuming Gamma Distribution		95% KM (z) UCL 0.892
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.91
Minimum	0.061	95% KM (bootstrap t) UCL 1.416
Maximum	3.4	95% KM (BCA) UCL 0.935
Mean	0.578	95% KM (Percentile Bootstrap) UCL 0.93
Median	0.36	95% KM (Chebyshev) UCL 1.407
SD	0.781	97.5% KM (Chebyshev) UCL 1.765
k star	0.967	99% KM (Chebyshev) UCL 2.468
Theta star	0.598	
Nu star	32.87	**Potential UCLs to Use**
AppChi2	20.76	95% KM (Chebyshev) UCL 1.407
95% Gamma Approximate UCL	0.915	
95% Adjusted Gamma UCL	0.961	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.046	Minimum Detected	-3.079
Maximum Detected	2.6	Maximum Detected	0.956
Mean of Detected	0.479	Mean of Detected	-1.219
SD of Detected	0.603	SD of Detected	1.016
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.598	Shapiro Wilk Test Statistic	0.953
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.462	Mean	-1.247
SD	0.588	SD	0.99
95% DL/2 (t) UCL	0.711	95% H-Stat (DL/2) UCL	0.905
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.246	Mean in Log Scale	-1.269
SD	0.792	SD in Log Scale	1.004
95% MLE (t) UCL	0.581	Mean in Original Scale	0.459
95% MLE (Tiku) UCL	0.652	SD in Original Scale	0.59
		95% t UCL	0.709
		95% Percentile Bootstrap UCL	0.72
		95% BCA Bootstrap UCL	0.831

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.994	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	0.482		
nu star	31.82		
A-D Test Statistic	0.572	Nonparametric Statistics	
5% A-D Critical Value	0.76	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.76	Mean	0.46
5% K-S Critical Value	0.22	SD	0.573
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.144
		95% KM (t) UCL	0.71
Assuming Gamma Distribution		95% KM (z) UCL	0.696
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.71
Minimum	0.046	95% KM (bootstrap t) UCL	1.02
Maximum	2.6	95% KM (BCA) UCL	0.727
Mean	0.458	95% KM (Percentile Bootstrap) UCL	0.718
Median	0.37	95% KM (Chebyshev) UCL	1.085
SD	0.591	97.5% KM (Chebyshev) UCL	1.356
k star	0.989	99% KM (Chebyshev) UCL	1.888
Theta star	0.463		
Nu star	33.62	Potential UCLs to Use	
AppChi2	21.36	95% KM (Chebyshev) UCL	1.085
95% Gamma Approximate UCL	0.721		
95% Adjusted Gamma UCL	0.757		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	15	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.066	Minimum Detected	-2.718
Maximum Detected	2.8	Maximum Detected	1.03
Mean of Detected	0.622	Mean of Detected	-0.891
SD of Detected	0.659	SD of Detected	0.965
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.711	Shapiro Wilk Test Statistic	0.979
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.596	Mean	-0.938
SD	0.647	SD	0.954
95% DL/2 (t) UCL	0.87	95% H-Stat (DL/2) UCL	1.149
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.408	Mean in Log Scale	-0.946
SD	0.839	SD in Log Scale	0.961
95% MLE (t) UCL	0.764	Mean in Original Scale	0.595
95% MLE (Tiku) UCL	0.811	SD in Original Scale	0.648
		95% t UCL	0.869
		95% Percentile Bootstrap UCL	0.87
		95% BCA Bootstrap UCL	0.971

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.134	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.548		
nu star	36.29		
A-D Test Statistic	0.278	**Nonparametric Statistics**	
5% A-D Critical Value	0.757	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.757	Mean	0.595
5% K-S Critical Value	0.22	SD	0.628
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.157
		95% KM (t) UCL	0.87
Assuming Gamma Distribution		95% KM (z) UCL	0.854
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.869
Minimum	0.066	95% KM (bootstrap t) UCL	1.125
Maximum	2.8	95% KM (BCA) UCL	0.897
Mean	0.593	95% KM (Percentile Bootstrap) UCL	0.871
Median	0.47	95% KM (Chebyshev) UCL	1.281
SD	0.649	97.5% KM (Chebyshev) UCL	1.578
k star	1.103	99% KM (Chebyshev) UCL	2.161
Theta star	0.537		
Nu star	37.51	**Potential UCLs to Use**	
AppChi2	24.49	95% KM (Chebyshev) UCL	1.281
95% Gamma Approximate UCL	0.908		
95% Adjusted Gamma UCL	0.951		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	14	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.048	Minimum Detected	-3.037
Maximum Detected	1.9	Maximum Detected	0.642
Mean of Detected	0.442	Mean of Detected	-1.198
SD of Detected	0.441	SD of Detected	0.938
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.718	Shapiro Wilk Test Statistic	0.965
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.427	Mean	-1.227
SD	0.431	SD	0.916
95% DL/2 (t) UCL	0.609	95% H-Stat (DL/2) UCL	0.799
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.252	Mean in Log Scale	-1.239
SD	0.607	SD in Log Scale	0.923
95% MLE (t) UCL	0.509	Mean in Original Scale	0.425
95% MLE (Tiku) UCL	0.584	SD in Original Scale	0.432
		95% t UCL	0.608
		95% Percentile Bootstrap UCL	0.592
		95% BCA Bootstrap UCL	0.687

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.223	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.361		
nu star	39.13		
A-D Test Statistic	0.324	**Nonparametric Statistics**	
5% A-D Critical Value	0.755	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.755	Mean	0.426
5% K-S Critical Value	0.219	SD	0.419
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.105
		95% KM (t) UCL	0.609
Assuming Gamma Distribution		95% KM (z) UCL	0.599
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.609
Minimum	0.048	95% KM (bootstrap t) UCL	0.75
Maximum	1.9	95% KM (BCA) UCL	0.634
Mean	0.427	95% KM (Percentile Bootstrap) UCL	0.6
Median	0.27	95% KM (Chebyshev) UCL	0.884
SD	0.431	97.5% KM (Chebyshev) UCL	1.083
k star	1.26	99% KM (Chebyshev) UCL	1.472
Theta star	0.339		
Nu star	42.83	**Potential UCLs to Use**	
AppChi2	28.83	95% KM (Chebyshev) UCL	0.884
95% Gamma Approximate UCL	0.635		
95% Adjusted Gamma UCL	0.663		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	17	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	6
		Percent Non-Detects	35.29%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.025	Minimum Detected	-3.689
Maximum Detected	1.1	Maximum Detected	0.0953
Mean of Detected	0.222	Mean of Detected	-2.202
SD of Detected	0.323	SD of Detected	1.17
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	88.24%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.646	Shapiro Wilk Test Statistic	0.944
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.205	Mean	-2.049
SD	0.257	SD	0.961
95% DL/2 (t) UCL	0.314	95% H-Stat (DL/2) UCL	0.383
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.334
		SD in Log Scale	0.944
		Mean in Original Scale	0.17
		SD in Original Scale	0.265
		95% t UCL	0.282
		95% Percentile Bootstrap UCL	0.285
		95% BCA Bootstrap UCL	0.341

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.677	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.327		
nu star	14.89		
A-D Test Statistic	0.657	**Nonparametric Statistics**	
5% A-D Critical Value	0.758	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.758	Mean	0.174
5% K-S Critical Value	0.264	SD	0.258
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0668
		95% KM (t) UCL	0.291
Assuming Gamma Distribution		95% KM (z) UCL	0.284
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.289
Minimum	0.025	95% KM (bootstrap t) UCL	0.478
Maximum	1.1	95% KM (BCA) UCL	0.294
Mean	0.217	95% KM (Percentile Bootstrap) UCL	0.283
Median	0.193	95% KM (Chebyshev) UCL	0.466
SD	0.255	97.5% KM (Chebyshev) UCL	0.592
k star	1.069	99% KM (Chebyshev) UCL	0.839
Theta star	0.203		
Nu star	36.34	**Potential UCLs to Use**	
AppChi2	23.54	95% KM (BCA) UCL	0.294
95% Gamma Approximate UCL	0.335		
95% Adjusted Gamma UCL	0.351		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	8.8	Minimum of Log Data	2.175
Maximum	125	Maximum of Log Data	4.828
Mean	22.86	Mean of log Data	2.902
Median	17.9	SD of log Data	0.555
SD	25.83		
Coefficient of Variation	1.13		
Skewness	4.054		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.401	Shapiro Wilk Test Statistic	0.732
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	33.46	95% H-UCL	28.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	33.55
95% Adjusted-CLT UCL (Chen-1995)	39.09	97.5% Chebyshev (MVUE) UCL	38.96
95% Modified-t UCL (Johnson-1978)	34.42	99% Chebyshev (MVUE) UCL	49.59

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.998	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	11.44	
MLE of Mean	22.86	
MLE of Standard Deviation	16.17	
nu star	71.94	
Approximate Chi Square Value (.05)	53.41	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 32.88
Adjusted Chi Square Value	51.88	95% Jackknife UCL 33.46
		95% Standard Bootstrap UCL 32.22
Anderson-Darling Test Statistic	2.477	95% Bootstrap-t UCL 68.16
Anderson-Darling 5% Critical Value	0.75	95% Hall's Bootstrap UCL 80.51
Kolmogorov-Smirnov Test Statistic	0.354	95% Percentile Bootstrap UCL 34.73
Kolmogorov-Smirnov 5% Critical Value	0.206	95% BCA Bootstrap UCL 40.7
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 49.4
		97.5% Chebyshev(Mean, Sd) UCL 60.89
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 83.44
95% Approximate Gamma UCL	30.8	
95% Adjusted Gamma UCL	31.7	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 49.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	4	Minimum of Log Data	1.386
Maximum	8.3	Maximum of Log Data	2.116
Mean	6.106	Mean of log Data	1.791
Median	6	SD of log Data	0.202
SD	1.171		
Coefficient of Variation	0.192		
Skewness	-0.192		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.95	Shapiro Wilk Test Statistic	0.925
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.586	95% H-UCL	6.678
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.388
95% Adjusted-CLT UCL (Chen-1995)	6.546	97.5% Chebyshev (MVUE) UCL	7.941
95% Modified-t UCL (Johnson-1978)	6.584	99% Chebyshev (MVUE) UCL	9.027

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	22.58	**Data appear Normal at 5% Significance Level**	
Theta Star	0.27		
MLE of Mean	6.106		
MLE of Standard Deviation	1.285		
nu star	812.9		
Approximate Chi Square Value (.05)	747.8	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	6.56
Adjusted Chi Square Value	741.8	95% Jackknife UCL	6.586
		95% Standard Bootstrap UCL	6.554
Anderson-Darling Test Statistic	0.555	95% Bootstrap-t UCL	6.556
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL	6.568
Kolmogorov-Smirnov Test Statistic	0.233	95% Percentile Bootstrap UCL	6.583
Kolmogorov-Smirnov 5% Critical Value	0.203	95% BCA Bootstrap UCL	6.522
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.309
		97.5% Chebyshev(Mean, Sd) UCL	7.83
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	8.853
95% Approximate Gamma UCL	6.638		
95% Adjusted Gamma UCL	6.691		

Potential UCL to Use		Use 95% Student's-t UCL	6.586

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	17	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	6
		Percent Non-Detects	35.29%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.035	Minimum Detected	-3.352
Maximum Detected	0.66	Maximum Detected	-0.416
Mean of Detected	0.153	Mean of Detected	-2.263
SD of Detected	0.178	SD of Detected	0.851
Minimum Non-Detect	0.2	Minimum Non-Detect	-1.609
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	94.12%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.636	Shapiro Wilk Test Statistic	0.944
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.156	Mean	-2.123
SD	0.143	SD	0.723
95% DL/2 (t) UCL	0.216	95% H-Stat (DL/2) UCL	0.235
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.321
		SD in Log Scale	0.678
		Mean in Original Scale	0.13
		SD in Original Scale	0.144
		95% t UCL	0.191
		95% Percentile Bootstrap UCL	0.195
		95% BCA Bootstrap UCL	0.222

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	1.112	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.137	
nu star	24.46	
A-D Test Statistic	0.553	**Nonparametric Statistics**
5% A-D Critical Value	0.743	Kaplan-Meier (KM) Method
K-S Test Statistic	0.743	Mean 0.134
5% K-S Critical Value	0.26	SD 0.142
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 0.0377
		95% KM (t) UCL 0.2
Assuming Gamma Distribution		95% KM (z) UCL 0.196
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.199
Minimum	0.035	95% KM (bootstrap t) UCL 0.269
Maximum	0.66	95% KM (BCA) UCL 0.202
Mean	0.152	95% KM (Percentile Bootstrap) UCL 0.198
Median	0.133	95% KM (Chebyshev) UCL 0.298
SD	0.14	97.5% KM (Chebyshev) UCL 0.369
k star	1.817	99% KM (Chebyshev) UCL 0.509
Theta star	0.0839	
Nu star	61.77	**Potential UCLs to Use**
AppChi2	44.69	95% KM (Percentile Bootstrap) UCL 0.198
95% Gamma Approximate UCL	0.211	
95% Adjusted Gamma UCL	0.218	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	16	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	14
		Percent Non-Detects	87.50%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.074	Minimum Detected	-2.604
Maximum Detected	0.23	Maximum Detected	-1.47
Mean of Detected	0.152	Mean of Detected	-2.037
SD of Detected	0.11	SD of Detected	0.802
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	0.77	Maximum Non-Detect	-0.261

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	16
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.176	Mean	-1.821
SD	0.0743	SD	0.423
95% DL/2 (t) UCL	0.208	95% H-Stat (DL/2) UCL	0.22
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.1
5% K-S Critical Value	N/A	SD	0.0581
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0336

Table D-2e3
ProUCL Output for Aggregate Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

		95% KM (t) UCL	0.159
Assuming Gamma Distribution		95% KM (z) UCL	0.155
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.202
Minimum	N/A	95% KM (bootstrap t) UCL	0.132
Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	0.23
Median	N/A	95% KM (Chebyshev) UCL	0.246
SD	N/A	97.5% KM (Chebyshev) UCL	0.31
k star	N/A	99% KM (Chebyshev) UCL	0.434
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	0.159
95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	0.23
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	17	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	1
		Percent Non-Detects	5.88%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.039	Minimum Detected	-3.244
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	0.324	Mean of Detected	-1.677
SD of Detected	0.409	SD of Detected	1.08
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.37	Maximum Non-Detect	-0.994

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.663	Shapiro Wilk Test Statistic	0.96
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.315	Mean	-1.678
SD	0.398	SD	1.046
95% DL/2 (t) UCL	0.484	95% H-Stat (DL/2) UCL	0.66
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.7
		SD in Log Scale	1.05
		Mean in Original Scale	0.312
		SD in Original Scale	0.399
		95% t UCL	0.481
		95% Percentile Bootstrap UCL	0.486
		95% BCA Bootstrap UCL	0.556

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.892	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.363		
nu star	28.53		
A-D Test Statistic	0.401	**Nonparametric Statistics**	
5% A-D Critical Value	0.763	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.763	Mean	0.314
5% K-S Critical Value	0.221	SD	0.387
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0972
		95% KM (t) UCL	0.483
Assuming Gamma Distribution		95% KM (z) UCL	0.474
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.483
Minimum	0.039	95% KM (bootstrap t) UCL	0.653
Maximum	1.7	95% KM (BCA) UCL	0.496
Mean	0.317	95% KM (Percentile Bootstrap) UCL	0.49
Median	0.207	95% KM (Chebyshev) UCL	0.737
SD	0.397	97.5% KM (Chebyshev) UCL	0.921
k star	0.941	99% KM (Chebyshev) UCL	1.281
Theta star	0.336		
Nu star	32.01	**Potential UCLs to Use**	
AppChi2	20.08	95% KM (Chebyshev) UCL	0.737
95% Gamma Approximate UCL	0.505		
95% Adjusted Gamma UCL	0.531		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	4940	Minimum of Log Data	8.505
Maximum	17200	Maximum of Log Data	9.753
Mean	12876	Mean of log Data	9.419
Median	13350	SD of log Data	0.331
SD	3412		
Coefficient of Variation	0.265		
Skewness	-0.996		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.898	Shapiro Wilk Test Statistic	0.813
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14275	95% H-UCL	15123
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17445
95% Adjusted-CLT UCL (Chen-1995)	13997	97.5% Chebyshev (MVUE) UCL	19381
95% Modified-t UCL (Johnson-1978)	14244	99% Chebyshev (MVUE) UCL	23183

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	9.623	**Data appear Normal at 5% Significance Level**
Theta Star	1338	
MLE of Mean	12876	
MLE of Standard Deviation	4151	
nu star	346.4	
Approximate Chi Square Value (.05)	304.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 14199
Adjusted Chi Square Value	300.5	95% Jackknife UCL 14275
		95% Standard Bootstrap UCL 14164
Anderson-Darling Test Statistic	1.078	95% Bootstrap-t UCL 14099
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL 14010
Kolmogorov-Smirnov Test Statistic	0.234	95% Percentile Bootstrap UCL 14110
Kolmogorov-Smirnov 5% Critical Value	0.203	95% BCA Bootstrap UCL 13991
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 16382
		97.5% Chebyshev(Mean, Sd) UCL 17899
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 20878
95% Approximate Gamma UCL	14659	
95% Adjusted Gamma UCL	14844	

Potential UCL to Use	Use 95% Student's-t UCL 14275

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	18.1	Minimum of Log Data	2.896
Maximum	1410	Maximum of Log Data	7.251
Mean	137.4	Mean of log Data	4.143
Median	61.1	SD of log Data	0.992
SD	319.5		
Coefficient of Variation	2.325		
Skewness	4.159		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.347	Shapiro Wilk Test Statistic	0.848
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	268.4	95% H-UCL	194
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	211.4
95% Adjusted-CLT UCL (Chen-1995)	340.1	97.5% Chebyshev (MVUE) UCL	259.9
95% Modified-t UCL (Johnson-1978)	280.7	99% Chebyshev (MVUE) UCL	355.2

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.675	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	203.6		
MLE of Mean	137.4		
MLE of Standard Deviation	167.2		
nu star	24.3		
Approximate Chi Square Value (.05)	14.08	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	261.3
Adjusted Chi Square Value	13.33	95% Jackknife UCL	268.4
		95% Standard Bootstrap UCL	255.6
Anderson-Darling Test Statistic	2.251	95% Bootstrap-t UCL	1006
Anderson-Darling 5% Critical Value	0.777	95% Hall's Bootstrap UCL	825.7
Kolmogorov-Smirnov Test Statistic	0.301	95% Percentile Bootstrap UCL	287.5
Kolmogorov-Smirnov 5% Critical Value	0.211	95% BCA Bootstrap UCL	366.4
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	465.6
		97.5% Chebyshev(Mean, Sd) UCL	607.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	886.7
95% Approximate Gamma UCL	237.2		
95% Adjusted Gamma UCL	250.4		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	465.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	17

Raw Statistics		**Log-transformed Statistics**	
Minimum	82.6	Minimum of Log Data	4.414
Maximum	432	Maximum of Log Data	6.068
Mean	254.9	Mean of log Data	5.456
Median	258.5	SD of log Data	0.457
SD	95.14		
Coefficient of Variation	0.373		
Skewness	-0.28		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.954	Shapiro Wilk Test Statistic	0.882
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	293.9	95% H-UCL	323.7
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	383
95% Adjusted-CLT UCL (Chen-1995)	290.2	97.5% Chebyshev (MVUE) UCL	437
95% Modified-t UCL (Johnson-1978)	293.7	99% Chebyshev (MVUE) UCL	543

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.077	**Data appear Normal at 5% Significance Level**	
Theta Star	50.21		
MLE of Mean	254.9		
MLE of Standard Deviation	113.1		
nu star	182.8		
Approximate Chi Square Value (.05)	152.5	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0357	95% CLT UCL	291.8
Adjusted Chi Square Value	149.9	95% Jackknife UCL	293.9
		95% Standard Bootstrap UCL	290.4
Anderson-Darling Test Statistic	0.753	95% Bootstrap-t UCL	291.6
Anderson-Darling 5% Critical Value	0.742	95% Hall's Bootstrap UCL	290.9
Kolmogorov-Smirnov Test Statistic	0.182	95% Percentile Bootstrap UCL	290.4
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL	291.5
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	352.7
		97.5% Chebyshev(Mean, Sd) UCL	395
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	478
95% Approximate Gamma UCL	305.5		
95% Adjusted Gamma UCL	310.9		

Potential UCL to Use	Use 95% Student's-t UCL	293.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	18	Number of Detected Data	10
Number of Distinct Detected Data	9	Number of Non-Detect Data	8
		Percent Non-Detects	44.44%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.11	Minimum Detected	-2.207
Maximum Detected	2.4	Maximum Detected	0.875
Mean of Detected	0.787	Mean of Detected	-0.682
SD of Detected	0.732	SD of Detected	1.049
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	0.97	Maximum Non-Detect	-0.0305

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	77.78%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.85	Shapiro Wilk Test Statistic	0.94
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.558	Mean	-1.025
SD	0.601	SD	0.947
95% DL/2 (t) UCL	0.804	95% H-Stat (DL/2) UCL	1.012
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.198	Mean in Log Scale	-1.107
SD	0.999	SD in Log Scale	0.922
95% MLE (t) UCL	0.608	Mean in Original Scale	0.526
95% MLE (Tiku) UCL	1.105	SD in Original Scale	0.612
		95% t UCL	0.777
		95% Percentile Bootstrap UCL	0.77
		95% BCA Bootstrap UCL	0.85

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.956	**Data appear Normal at 5% Significance Level**
Theta Star	0.824	
nu star	19.11	
A-D Test Statistic	0.337	
5% A-D Critical Value	0.743	
K-S Test Statistic	0.743	
5% K-S Critical Value	0.272	
Data appear Gamma Distributed at 5% Significance Level		

Assuming Gamma Distribution		Nonparametric Statistics	
Gamma ROS Statistics using Extrapolated Data		Kaplan-Meier (KM) Method	
Minimum	0.11	Mean	0.53
Maximum	2.4	SD	0.598
Mean	0.727	SE of Mean	0.151
Median	0.663	95% KM (t) UCL	0.792
SD	0.552	95% KM (z) UCL	0.778
k star	1.651	95% KM (jackknife) UCL	0.787
Theta star	0.44	95% KM (bootstrap t) UCL	0.897
Nu star	59.44	95% KM (BCA) UCL	0.82
AppChi2	42.71	95% KM (Percentile Bootstrap) UCL	0.79
95% Gamma Approximate UCL	1.011	95% KM (Chebyshev) UCL	1.187
95% Adjusted Gamma UCL	1.045	97.5% KM (Chebyshev) UCL	1.471
		99% KM (Chebyshev) UCL	2.03
		Potential UCLs to Use	
		95% KM (t) UCL	0.792
		95% KM (Percentile Bootstrap) UCL	0.79

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	18	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	16
		Percent Non-Detects	88.89%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	1.6	Maximum Detected	0.47
Mean of Detected	1.4	Mean of Detected	0.326
SD of Detected	0.283	SD of Detected	0.203
Minimum Non-Detect	1.2	Minimum Non-Detect	0.182
Maximum Non-Detect	3.1	Maximum Non-Detect	1.131

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	18
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.929	Mean	-0.147
SD	0.386	SD	0.383
95% DL/2 (t) UCL	1.087	95% H-Stat (DL/2) UCL	1.11
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	N/A	
nu star	N/A	
A-D Test Statistic	N/A	**Nonparametric Statistics**
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method
K-S Test Statistic	N/A	Mean 1.231
5% K-S Critical Value	N/A	SD 0.107
Data not Gamma Distributed at 5% Significance Level		SE of Mean 0.0418

Table D-2e3
ProUCL Output for Aggregate Soil- Area E3
Scovill Industrial Landfill Site
Waterbury, Connecticut

		95% KM (t) UCL	1.303
Assuming Gamma Distribution		95% KM (z) UCL	1.3
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.494
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	1.6
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1.6
Median	N/A	95% KM (Chebyshev) UCL	1.413
SD	N/A	97.5% KM (Chebyshev) UCL	1.492
k star	N/A	99% KM (Chebyshev) UCL	1.647
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.303
95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	1.6
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	18	Number of Distinct Observations	18

Raw Statistics		**Log-transformed Statistics**	
Minimum	15.7	Minimum of Log Data	2.754
Maximum	51.6	Maximum of Log Data	3.944
Mean	30.18	Mean of log Data	3.349
Median	27.7	SD of log Data	0.352
SD	10.62		
Coefficient of Variation	0.352		
Skewness	0.638		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.943	Shapiro Wilk Test Statistic	0.971
Shapiro Wilk Critical Value	0.897	Shapiro Wilk Critical Value	0.897
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	34.53	95% H-UCL	35.61
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	41.31
95% Adjusted-CLT UCL (Chen-1995)	34.7	97.5% Chebyshev (MVUE) UCL	46.12
95% Modified-t UCL (Johnson-1978)	34.59	99% Chebyshev (MVUE) UCL	55.57

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.343	**Data appear Normal at 5% Significance Level**
Theta Star	4.109	
MLE of Mean	30.18	
MLE of Standard Deviation	11.14	
nu star	264.4	
Approximate Chi Square Value (.05)	227.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.0357	95% CLT UCL 34.29
Adjusted Chi Square Value	224.4	95% Jackknife UCL 34.53
		95% Standard Bootstrap UCL 34.21
Anderson-Darling Test Statistic	0.193	95% Bootstrap-t UCL 35.07
Anderson-Darling 5% Critical Value	0.74	95% Hall's Bootstrap UCL 35.07
Kolmogorov-Smirnov Test Statistic	0.106	95% Percentile Bootstrap UCL 34.25
Kolmogorov-Smirnov 5% Critical Value	0.204	95% BCA Bootstrap UCL 34.62
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 41.09
		97.5% Chebyshev(Mean, Sd) UCL 45.81
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 55.09
95% Approximate Gamma UCL	35.03	
95% Adjusted Gamma UCL	35.54	

Potential UCL to Use	Use 95% Student's-t UCL 34.53

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2f
ProUCL Output for Aggregate Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_F-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	29

Raw Statistics		**Log-transformed Statistics**	
Minimum	3380	Minimum of Log Data	8.126
Maximum	16400	Maximum of Log Data	9.705
Mean	8051	Mean of log Data	8.893
Median	6710	SD of log Data	0.457
SD	3769		
Coefficient of Variation	0.468		
Skewness	0.922		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.891	Shapiro Wilk Test Statistic	0.956
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9241	95% H-UCL	9527
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11128
95% Adjusted-CLT UCL (Chen-1995)	9330	97.5% Chebyshev (MVUE) UCL	12462
95% Modified-t UCL (Johnson-1978)	9261	99% Chebyshev (MVUE) UCL	15082

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.609	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1747	
MLE of Mean	8051	
MLE of Standard Deviation	3750	
nu star	267.3	
Approximate Chi Square Value (.05)	230.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 9202
Adjusted Chi Square Value	228.4	95% Jackknife UCL 9241
		95% Standard Bootstrap UCL 9217
Anderson-Darling Test Statistic	0.448	95% Bootstrap-t UCL 9398
Anderson-Darling 5% Critical Value	0.747	95% Hall's Bootstrap UCL 9279
Kolmogorov-Smirnov Test Statistic	0.116	95% Percentile Bootstrap UCL 9186
Kolmogorov-Smirnov 5% Critical Value	0.163	95% BCA Bootstrap UCL 9418
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 11101
		97.5% Chebyshev(Mean, Sd) UCL 12421
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 15014
95% Approximate Gamma UCL	9338	
95% Adjusted Gamma UCL	9422	

Potential UCL to Use	Use 95% Approximate Gamma UCL 9338

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	29	Number of Detected Data	28
Number of Distinct Detected Data	25	Number of Non-Detect Data	1
		Percent Non-Detects	3.45%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.2	Minimum Detected	0.182
Maximum Detected	15.5	Maximum Detected	2.741
Mean of Detected	6.296	Mean of Detected	1.642
SD of Detected	3.773	SD of Detected	0.679
Minimum Non-Detect	0.93	Minimum Non-Detect	-0.0726
Maximum Non-Detect	0.93	Maximum Non-Detect	-0.0726

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.941	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.924	5% Shapiro Wilk Critical Value	0.924
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.095	Mean	1.559
SD	3.86	SD	0.803
95% DL/2 (t) UCL	7.315	95% H-Stat (DL/2) UCL	9.216
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.049	Mean in Log Scale	1.584
SD	3.88	SD in Log Scale	0.738
95% MLE (t) UCL	7.274	Mean in Original Scale	6.112
95% MLE (Tiku) UCL	7.247	SD in Original Scale	3.835
		95% t UCL	7.324
		95% Percentile Bootstrap UCL	7.329
		95% BCA Bootstrap UCL	7.336

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	2.418	**Data appear Normal at 5% Significance Level**	
Theta Star	2.603		
nu star	135.4		
A-D Test Statistic	0.188	**Nonparametric Statistics**	
5% A-D Critical Value	0.755	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.755	Mean	6.121
5% K-S Critical Value	0.167	SD	3.757
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.71
		95% KM (t) UCL	7.329
Assuming Gamma Distribution		95% KM (z) UCL	7.289
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.323
Minimum	1E-12	95% KM (bootstrap t) UCL	7.556
Maximum	15.5	95% KM (BCA) UCL	7.366
Mean	6.079	95% KM (Percentile Bootstrap) UCL	7.303
Median	5.3	95% KM (Chebyshev) UCL	9.218
SD	3.885	97.5% KM (Chebyshev) UCL	10.56
k star	0.504	99% KM (Chebyshev) UCL	13.19
Theta star	12.07		
Nu star	29.21	**Potential UCLs to Use**	
AppChi2	17.87	95% KM (t) UCL	7.329
95% Gamma Approximate UCL	9.935	95% KM (Percentile Bootstrap) UCL	7.303
95% Adjusted Gamma UCL	10.24		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	27	Number of Detected Data	25
Number of Distinct Detected Data	23	Number of Non-Detect Data	2
		Percent Non-Detects	7.41%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.041	Minimum Detected	-3.194
Maximum Detected	4.3	Maximum Detected	1.459
Mean of Detected	0.832	Mean of Detected	-0.847
SD of Detected	1.008	SD of Detected	1.273
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	15
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	44.44%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.731	Shapiro Wilk Test Statistic	0.968
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.784	Mean	-0.906
SD	0.983	SD	1.242
95% DL/2 (t) UCL	1.107	95% H-Stat (DL/2) UCL	1.751
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.412	Mean in Log Scale	-0.936
SD	1.367	SD in Log Scale	1.264
95% MLE (t) UCL	0.861	Mean in Original Scale	0.78
95% MLE (Tiku) UCL	0.936	SD in Original Scale	0.986
		95% t UCL	1.104
		95% Percentile Bootstrap UCL	1.126
		95% BCA Bootstrap UCL	1.181

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.805	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.034		
nu star	40.24		
A-D Test Statistic	0.243	**Nonparametric Statistics**	
5% A-D Critical Value	0.778	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.778	Mean	0.78
5% K-S Critical Value	0.18	SD	0.968
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.19
		95% KM (t) UCL	1.105
Assuming Gamma Distribution		95% KM (z) UCL	1.093
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.104
Minimum	0.0119	95% KM (bootstrap t) UCL	1.32
Maximum	4.3	95% KM (BCA) UCL	1.079
Mean	0.773	95% KM (Percentile Bootstrap) UCL	1.108
Median	0.46	95% KM (Chebyshev) UCL	1.609
SD	0.991	97.5% KM (Chebyshev) UCL	1.968
k star	0.696	99% KM (Chebyshev) UCL	2.673
Theta star	1.111		
Nu star	37.56	**Potential UCLs to Use**	
AppChi2	24.53	95% KM (Chebyshev) UCL	1.609
95% Gamma Approximate UCL	1.184		
95% Adjusted Gamma UCL	1.217		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	27	Number of Detected Data	23
Number of Distinct Detected Data	23	Number of Non-Detect Data	4
		Percent Non-Detects	14.81%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.043	Minimum Detected	-3.147
Maximum Detected	4.1	Maximum Detected	1.411
Mean of Detected	0.72	Mean of Detected	-0.845
SD of Detected	0.875	SD of Detected	1.087
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	13
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	51.85%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.652	Shapiro Wilk Test Statistic	0.971
5% Shapiro Wilk Critical Value	0.914	5% Shapiro Wilk Critical Value	0.914
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.642	Mean	-0.965
SD	0.827	SD	1.042
95% DL/2 (t) UCL	0.913	95% H-Stat (DL/2) UCL	1.109
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.18	Mean in Log Scale	-1
SD	1.259	SD in Log Scale	1.072
95% MLE (t) UCL	0.593	Mean in Original Scale	0.636
95% MLE (Tiku) UCL	0.706	SD in Original Scale	0.831
		95% t UCL	0.909
		95% Percentile Bootstrap UCL	0.938
		95% BCA Bootstrap UCL	1.028

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.99	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	0.728	
nu star	45.52	
A-D Test Statistic	0.395	**Nonparametric Statistics**
5% A-D Critical Value	0.767	Kaplan-Meier (KM) Method
K-S Test Statistic	0.767	Mean 0.64
5% K-S Critical Value	0.186	SD 0.814
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 0.16
		95% KM (t) UCL 0.914
Assuming Gamma Distribution		95% KM (z) UCL 0.904
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.913
Minimum	1E-12	95% KM (bootstrap t) UCL 1.247
Maximum	4.1	95% KM (BCA) UCL 0.935
Mean	0.645	95% KM (Percentile Bootstrap) UCL 0.91
Median	0.4	95% KM (Chebyshev) UCL 1.34
SD	0.827	97.5% KM (Chebyshev) UCL 1.642
k star	0.422	99% KM (Chebyshev) UCL 2.237
Theta star	1.528	
Nu star	22.8	**Potential UCLs to Use**
AppChi2	12.94	95% KM (Chebyshev) UCL 1.34
95% Gamma Approximate UCL	1.137	
95% Adjusted Gamma UCL	1.18	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	27	Number of Detected Data	26
Number of Distinct Detected Data	24	Number of Non-Detect Data	1
		Percent Non-Detects	3.70%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.054	Minimum Detected	-2.919
Maximum Detected	5.1	Maximum Detected	1.629
Mean of Detected	0.913	Mean of Detected	-0.688
SD of Detected	1.122	SD of Detected	1.178
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.36	Maximum Non-Detect	-1.022

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.69	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.886	Mean	-0.726
SD	1.109	SD	1.172
95% DL/2 (t) UCL	1.25	95% H-Stat (DL/2) UCL	1.81
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.484	Mean in Log Scale	-0.728
SD	1.52	SD in Log Scale	1.173
95% MLE (t) UCL	0.983	Mean in Original Scale	0.886
95% MLE (Tiku) UCL	1.047	SD in Original Scale	1.109
		95% t UCL	1.25
		95% Percentile Bootstrap UCL	1.255
		95% BCA Bootstrap UCL	1.369

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.884	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	1.033		
nu star	45.98		
A-D Test Statistic	0.418	Nonparametric Statistics	
5% A-D Critical Value	0.775	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.775	Mean	0.886
5% K-S Critical Value	0.177	SD	1.088
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.214
		95% KM (t) UCL	1.251
Assuming Gamma Distribution		95% KM (z) UCL	1.238
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.25
Minimum	0.0351	95% KM (bootstrap t) UCL	1.602
Maximum	5.1	95% KM (BCA) UCL	1.271
Mean	0.881	95% KM (Percentile Bootstrap) UCL	1.251
Median	0.59	95% KM (Chebyshev) UCL	1.817
SD	1.113	97.5% KM (Chebyshev) UCL	2.22
k star	0.814	99% KM (Chebyshev) UCL	3.012
Theta star	1.082		
Nu star	43.97	Potential UCLs to Use	
AppChi2	29.76	95% KM (Chebyshev) UCL	1.817
95% Gamma Approximate UCL	1.301		
95% Adjusted Gamma UCL	1.335		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	27	Number of Detected Data	25
Number of Distinct Detected Data	24	Number of Non-Detect Data	2
		Percent Non-Detects	7.41%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.049	Minimum Detected	-3.016
Maximum Detected	4.4	Maximum Detected	1.482
Mean of Detected	0.849	Mean of Detected	-0.865
SD of Detected	1.158	SD of Detected	1.223
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.38	Maximum Non-Detect	-0.968

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	13
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	51.85%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.656	Shapiro Wilk Test Statistic	0.967
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.8	Mean	-0.926
SD	1.126	SD	1.195
95% DL/2 (t) UCL	1.17	95% H-Stat (DL/2) UCL	1.554
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.115	Mean in Log Scale	-0.936
SD	1.772	SD in Log Scale	1.203
95% MLE (t) UCL	0.696	Mean in Original Scale	0.798
95% MLE (Tiku) UCL	0.852	SD in Original Scale	1.127
		95% t UCL	1.168
		95% Percentile Bootstrap UCL	1.185
		95% BCA Bootstrap UCL	1.273

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.767	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.108		
nu star	38.33		
A-D Test Statistic	0.756	**Nonparametric Statistics**	
5% A-D Critical Value	0.78	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.78	Mean	0.8
5% K-S Critical Value	0.181	SD	1.106
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.217
		95% KM (t) UCL	1.17
Assuming Gamma Distribution		95% KM (z) UCL	1.157
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.17
Minimum	0.049	95% KM (bootstrap t) UCL	1.466
Maximum	4.4	95% KM (BCA) UCL	1.211
Mean	0.792	95% KM (Percentile Bootstrap) UCL	1.17
Median	0.36	95% KM (Chebyshev) UCL	1.747
SD	1.131	97.5% KM (Chebyshev) UCL	2.156
k star	0.72	99% KM (Chebyshev) UCL	2.961
Theta star	1.1		
Nu star	38.9	**Potential UCLs to Use**	
AppChi2	25.61	95% KM (Chebyshev) UCL	1.747
95% Gamma Approximate UCL	1.203		
95% Adjusted Gamma UCL	1.236		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	29	Number of Detected Data	25
Number of Distinct Detected Data	23	Number of Non-Detect Data	4
		Percent Non-Detects	13.79%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.11	Minimum Detected	-2.207
Maximum Detected	14.6	Maximum Detected	2.681
Mean of Detected	3.539	Mean of Detected	0.443
SD of Detected	4.059	SD of Detected	1.439
Minimum Non-Detect	0.09	Minimum Non-Detect	-2.408
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	10
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	65.52%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.805	Shapiro Wilk Test Statistic	0.944
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.125	Mean	0.0889
SD	3.916	SD	1.723
95% DL/2 (t) UCL	4.362	95% H-Stat (DL/2) UCL	14.97
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.661	Mean in Log Scale	0.0673
SD	5.703	SD in Log Scale	1.677
95% MLE (t) UCL	3.463	Mean in Original Scale	3.074
95% MLE (Tiku) UCL	4.489	SD in Original Scale	3.94
		95% t UCL	4.319
		95% Percentile Bootstrap UCL	4.294
		95% BCA Bootstrap UCL	4.494

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.671	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	5.276	
nu star	33.54	
A-D Test Statistic	0.709	**Nonparametric Statistics**
5% A-D Critical Value	0.785	Kaplan-Meier (KM) Method
K-S Test Statistic	0.785	Mean 3.085
5% K-S Critical Value	0.182	SD 3.866
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean 0.733
		95% KM (t) UCL 4.332
Assuming Gamma Distribution		95% KM (z) UCL 4.291
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 4.322
Minimum	1E-12	95% KM (bootstrap t) UCL 4.596
Maximum	14.6	95% KM (BCA) UCL 4.281
Mean	3.104	95% KM (Percentile Bootstrap) UCL 4.306
Median	1.1	95% KM (Chebyshev) UCL 6.28
SD	3.926	97.5% KM (Chebyshev) UCL 7.663
k star	0.206	99% KM (Chebyshev) UCL 10.38
Theta star	15.07	
Nu star	11.95	**Potential UCLs to Use**
AppChi2	5.192	95% KM (Chebyshev) UCL 6.28
95% Gamma Approximate UCL	7.141	
95% Adjusted Gamma UCL	7.525	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	24	Number of Detected Data	16
Number of Distinct Detected Data	16	Number of Non-Detect Data	8
		Percent Non-Detects	33.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.05	Minimum Detected	-2.996
Maximum Detected	0.92	Maximum Detected	-0.0834
Mean of Detected	0.229	Mean of Detected	-1.871
SD of Detected	0.235	SD of Detected	0.902
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	21
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	87.50%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.755	Shapiro Wilk Test Statistic	0.934
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.216	Mean	-1.8
SD	0.191	SD	0.736
95% DL/2 (t) UCL	0.283	95% H-Stat (DL/2) UCL	0.305
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.962
		SD in Log Scale	0.775
		Mean in Original Scale	0.195
		SD in Original Scale	0.198
		95% t UCL	0.264
		95% Percentile Bootstrap UCL	0.269
		95% BCA Bootstrap UCL	0.292

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.178	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.195		
nu star	37.68		
A-D Test Statistic	0.545	**Nonparametric Statistics**	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	0.198
5% K-S Critical Value	0.219	SD	0.196
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0432
		95% KM (t) UCL	0.272
Assuming Gamma Distribution		95% KM (z) UCL	0.269
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.272
Minimum	0.05	95% KM (bootstrap t) UCL	0.308
Maximum	0.92	95% KM (BCA) UCL	0.27
Mean	0.23	95% KM (Percentile Bootstrap) UCL	0.272
Median	0.219	95% KM (Chebyshev) UCL	0.386
SD	0.19	97.5% KM (Chebyshev) UCL	0.468
k star	1.803	99% KM (Chebyshev) UCL	0.628
Theta star	0.128		
Nu star	86.54	**Potential UCLs to Use**	
AppChi2	66.09	95% KM (Percentile Bootstrap) UCL	0.272
95% Gamma Approximate UCL	0.301		
95% Adjusted Gamma UCL	0.307		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TABLE D-2f
ProUCL Output for Aggregate Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

Chromium Total

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	26

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.3	Minimum of Log Data	1.459
Maximum	507	Maximum of Log Data	6.229
Mean	32.24	Mean of log Data	2.759
Median	14.1	SD of log Data	0.81
SD	91.51		
Coefficient of Variation	2.838		
Skewness	5.348		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.242	Shapiro Wilk Test Statistic	0.711
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	61.15	95% H-UCL	30.88
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	37.21
95% Adjusted-CLT UCL (Chen-1995)	78.22	97.5% Chebyshev (MVUE) UCL	43.97
95% Modified-t UCL (Johnson-1978)	63.96	99% Chebyshev (MVUE) UCL	57.24

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.765	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	42.15	
MLE of Mean	32.24	
MLE of Standard Deviation	36.86	
nu star	44.37	
Approximate Chi Square Value (.05)	30.09	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 60.19
Adjusted Chi Square Value	29.39	95% Jackknife UCL 61.15
		95% Standard Bootstrap UCL 59.63
Anderson-Darling Test Statistic	5.603	95% Bootstrap-t UCL 346
Anderson-Darling 5% Critical Value	0.781	95% Hall's Bootstrap UCL 205.1
Kolmogorov-Smirnov Test Statistic	0.358	95% Percentile Bootstrap UCL 66.04
Kolmogorov-Smirnov 5% Critical Value	0.169	95% BCA Bootstrap UCL 83.1
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 106.3
		97.5% Chebyshev(Mean, Sd) UCL 138.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 201.3
95% Approximate Gamma UCL	47.54	
95% Adjusted Gamma UCL	48.68	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 106.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	22

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.7	Minimum of Log Data	0.993
Maximum	10.1	Maximum of Log Data	2.313
Mean	5.876	Mean of log Data	1.736
Median	5.6	SD of log Data	0.276
SD	1.571		
Coefficient of Variation	0.267		
Skewness	0.652		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.943	Shapiro Wilk Test Statistic	0.946
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.372	95% H-UCL	6.468
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.215
95% Adjusted-CLT UCL (Chen-1995)	6.393	97.5% Chebyshev (MVUE) UCL	7.791
95% Modified-t UCL (Johnson-1978)	6.378	99% Chebyshev (MVUE) UCL	8.923

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	12.87	**Data appear Normal at 5% Significance Level**
Theta Star	0.456	
MLE of Mean	5.876	
MLE of Standard Deviation	1.638	
nu star	746.7	
Approximate Chi Square Value (.05)	684.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 6.356
Adjusted Chi Square Value	680.7	95% Jackknife UCL 6.372
		95% Standard Bootstrap UCL 6.363
Anderson-Darling Test Statistic	0.647	95% Bootstrap-t UCL 6.454
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL 6.478
Kolmogorov-Smirnov Test Statistic	0.135	95% Percentile Bootstrap UCL 6.348
Kolmogorov-Smirnov 5% Critical Value	0.162	95% BCA Bootstrap UCL 6.372
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.147
		97.5% Chebyshev(Mean, Sd) UCL 7.697
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8.778
95% Approximate Gamma UCL	6.412	
95% Adjusted Gamma UCL	6.445	

Potential UCL to Use	Use 95% Student's-t UCL 6.372

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	25	Number of Detected Data	18
Number of Distinct Detected Data	17	Number of Non-Detect Data	7
		Percent Non-Detects	28.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.054	Minimum Detected	-2.919
Maximum Detected	1.4	Maximum Detected	0.336
Mean of Detected	0.242	Mean of Detected	-1.777
SD of Detected	0.305	SD of Detected	0.776
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	2.3	Maximum Non-Detect	0.833

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	25
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.531	Shapiro Wilk Test Statistic	0.924
5% Shapiro Wilk Critical Value	0.897	5% Shapiro Wilk Critical Value	0.897
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.266	Mean	-1.672
SD	0.317	SD	0.757
95% DL/2 (t) UCL	0.375	95% H-Stat (DL/2) UCL	0.352
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.813
		SD in Log Scale	0.668
		Mean in Original Scale	0.217
		SD in Original Scale	0.261
		95% t UCL	0.307
		95% Percentile Bootstrap UCL	0.31
		95% BCA Bootstrap UCL	0.37

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.314	**Data appear Lognormal at 5% Significance Level**	
Theta Star	0.184		
nu star	47.31		
A-D Test Statistic	1.065	**Nonparametric Statistics**	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	0.221
5% K-S Critical Value	0.207	SD	0.262
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0557
		95% KM (t) UCL	0.316
Assuming Gamma Distribution		95% KM (z) UCL	0.313
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.316
Minimum	0.054	95% KM (bootstrap t) UCL	0.454
Maximum	1.4	95% KM (BCA) UCL	0.325
Mean	0.244	95% KM (Percentile Bootstrap) UCL	0.321
Median	0.185	95% KM (Chebyshev) UCL	0.464
SD	0.258	97.5% KM (Chebyshev) UCL	0.569
k star	1.821	99% KM (Chebyshev) UCL	0.776
Theta star	0.134		
Nu star	91.03	**Potential UCLs to Use**	
AppChi2	70.03	95% KM (BCA) UCL	0.325
95% Gamma Approximate UCL	0.318		
95% Adjusted Gamma UCL	0.324		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dieldrin

General Statistics

Number of Valid Data	20	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	15
		Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0012	Minimum Detected	-6.725
Maximum Detected	0.044	Maximum Detected	-3.124
Mean of Detected	0.0105	Mean of Detected	-5.652
SD of Detected	0.0188	SD of Detected	1.506
Minimum Non-Detect	0.0035	Minimum Non-Detect	-5.655
Maximum Non-Detect	0.019	Maximum Non-Detect	-3.963

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	19
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	95.00%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set

the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.606	Shapiro Wilk Test Statistic	0.789
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00453	Mean	-5.99
SD	0.00946	SD	0.802
95% DL/2 (t) UCL	0.00819	95% H-Stat (DL/2) UCL	0.00534
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-6.284
		SD in Log Scale	0.844
		Mean in Original Scale	0.00384
		SD in Original Scale	0.00949
		95% t UCL	0.00751
		95% Percentile Bootstrap UCL	0.008
		95% BCA Bootstrap UCL	0.0104

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.36	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	0.0293		
nu star	3.6		
A-D Test Statistic	0.806	**Nonparametric Statistics**	
5% A-D Critical Value	0.708	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.708	Mean	0.00373
5% K-S Critical Value	0.37	SD	0.00927
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.00232
		95% KM (t) UCL	0.00774
Assuming Gamma Distribution		95% KM (z) UCL	0.00754
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.00741
Minimum	0.0009143	95% KM (bootstrap t) UCL	0.0699
Maximum	0.044	95% KM (BCA) UCL	0.00806
Mean	0.0101	95% KM (Percentile Bootstrap) UCL	0.00811
Median	0.0106	95% KM (Chebyshev) UCL	0.0138

TABLE D-2f
ProUCL Output for Aggregate Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.00952	97.5% KM (Chebyshev) UCL	0.0182
k star	1.155	99% KM (Chebyshev) UCL	0.0268
Theta star	0.00873		
Nu star	46.21	**Potential UCLs to Use**	
AppChi2	31.61	95% KM (t) UCL	0.00774
95% Gamma Approximate UCL	0.0147		
95% Adjusted Gamma UCL	0.0152		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	24	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	21
		Percent Non-Detects	87.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.098	Minimum Detected	-2.323
Maximum Detected	1.2	Maximum Detected	0.182
Mean of Detected	0.499	Mean of Detected	-1.25
SD of Detected	0.609	SD of Detected	1.291
Minimum Non-Detect	0.35	Minimum Non-Detect	-1.05
Maximum Non-Detect	2.3	Maximum Non-Detect	0.833

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	24
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.819	Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.305	Mean	-1.406
SD	0.281	SD	0.583
95% DL/2 (t) UCL	0.403	95% H-Stat (DL/2) UCL	0.373
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.865
		SD in Log Scale	0.619
		Mean in Original Scale	0.199
		SD in Original Scale	0.224
		95% t UCL	0.278
		95% Percentile Bootstrap UCL	0.283
		95% BCA Bootstrap UCL	0.334

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.195
5% K-S Critical Value	N/A	SD	0.22
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0691
		95% KM (t) UCL	0.313
Assuming Gamma Distribution		95% KM (z) UCL	0.308
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.334
Minimum	N/A	95% KM (bootstrap t) UCL	0.349
Maximum	N/A	95% KM (BCA) UCL	1.2
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1.2
Median	N/A	95% KM (Chebyshev) UCL	0.496

TABLE D-2f
ProUCL Output for Aggregate Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	N/A	97.5% KM (Chebyshev) UCL	0.626
k star	N/A	99% KM (Chebyshev) UCL	0.883
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	0.313
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	1.2
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	25	Number of Detected Data	22
Number of Distinct Detected Data	20	Number of Non-Detect Data	3
		Percent Non-Detects	12.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.055	Minimum Detected	-2.9
Maximum Detected	2.9	Maximum Detected	1.065
Mean of Detected	0.546	Mean of Detected	-1.074
SD of Detected	0.624	SD of Detected	1.025
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	0.41	Maximum Non-Detect	-0.892

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	14
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	11
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	56.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.676	Shapiro Wilk Test Statistic	0.96
5% Shapiro Wilk Critical Value	0.911	5% Shapiro Wilk Critical Value	0.911
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.503	Mean	-1.146
SD	0.595	SD	0.979
95% DL/2 (t) UCL	0.707	95% H-Stat (DL/2) UCL	0.841
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.159	Mean in Log Scale	-1.165
SD	0.918	SD in Log Scale	0.995
95% MLE (t) UCL	0.473	Mean in Original Scale	0.5
95% MLE (Tiku) UCL	0.583	SD in Original Scale	0.597
		95% t UCL	0.705
		95% Percentile Bootstrap UCL	0.71
		95% BCA Bootstrap UCL	0.793

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.071	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.51		
nu star	47.11		
A-D Test Statistic	0.394	**Nonparametric Statistics**	
5% A-D Critical Value	0.766	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.766	Mean	0.504
5% K-S Critical Value	0.19	SD	0.584
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.12
		95% KM (t) UCL	0.709
Assuming Gamma Distribution		95% KM (z) UCL	0.701
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.708
Minimum	0.055	95% KM (bootstrap t) UCL	0.911
Maximum	2.9	95% KM (BCA) UCL	0.717
Mean	0.511	95% KM (Percentile Bootstrap) UCL	0.714
Median	0.34	95% KM (Chebyshev) UCL	1.026
SD	0.594	97.5% KM (Chebyshev) UCL	1.253
k star	1.101	99% KM (Chebyshev) UCL	1.697
Theta star	0.464		
Nu star	55.04	**Potential UCLs to Use**	
AppChi2	38.99	95% KM (BCA) UCL	0.717
95% Gamma Approximate UCL	0.722		
95% Adjusted Gamma UCL	0.739		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	28	Number of Distinct Observations	27

Raw Statistics		**Log-transformed Statistics**	
Minimum	6730	Minimum of Log Data	8.814
Maximum	37800	Maximum of Log Data	10.54
Mean	13358	Mean of log Data	9.428
Median	12350	SD of log Data	0.371
SD	5973		
Coefficient of Variation	0.447		
Skewness	2.604		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.77	Shapiro Wilk Test Statistic	0.948
Shapiro Wilk Critical Value	0.924	Shapiro Wilk Critical Value	0.924
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	15281	95% H-UCL	15189
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17435
95% Adjusted-CLT UCL (Chen-1995)	15808	97.5% Chebyshev (MVUE) UCL	19235
95% Modified-t UCL (Johnson-1978)	15373	99% Chebyshev (MVUE) UCL	22769

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	6.339	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	2107	
MLE of Mean	13358	
MLE of Standard Deviation	5306	
nu star	355	
Approximate Chi Square Value (.05)	312.3	**Nonparametric Statistics**
Adjusted Level of Significance	0.0404	95% CLT UCL 15215
Adjusted Chi Square Value	309.9	95% Jackknife UCL 15281
		95% Standard Bootstrap UCL 15134
Anderson-Darling Test Statistic	0.531	95% Bootstrap-t UCL 16227
Anderson-Darling 5% Critical Value	0.747	95% Hall's Bootstrap UCL 24317
Kolmogorov-Smirnov Test Statistic	0.115	95% Percentile Bootstrap UCL 15286
Kolmogorov-Smirnov 5% Critical Value	0.166	95% BCA Bootstrap UCL 15726
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 18278
		97.5% Chebyshev(Mean, Sd) UCL 20407
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 24589
95% Approximate Gamma UCL	15183	
95% Adjusted Gamma UCL	15304	

Potential UCL to Use		Use 95% Approximate Gamma UCL	15183

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	29

Raw Statistics		**Log-transformed Statistics**	
Minimum	7.4	Minimum of Log Data	2.001
Maximum	787	Maximum of Log Data	6.668
Mean	150.1	Mean of log Data	4.265
Median	121	SD of log Data	1.317
SD	195.6		
Coefficient of Variation	1.303		
Skewness	2.386		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.683	Shapiro Wilk Test Statistic	0.944
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	211.9	95% H-UCL	347.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	370
95% Adjusted-CLT UCL (Chen-1995)	227	97.5% Chebyshev (MVUE) UCL	460.5
95% Modified-t UCL (Johnson-1978)	214.6	99% Chebyshev (MVUE) UCL	638.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.737	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	203.7	
MLE of Mean	150.1	
MLE of Standard Deviation	174.9	
nu star	42.73	
Approximate Chi Square Value (.05)	28.74	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 209.9
Adjusted Chi Square Value	28.06	95% Jackknife UCL 211.9
		95% Standard Bootstrap UCL 209.8
Anderson-Darling Test Statistic	0.756	95% Bootstrap-t UCL 264.3
Anderson-Darling 5% Critical Value	0.782	95% Hall's Bootstrap UCL 528.1
Kolmogorov-Smirnov Test Statistic	0.163	95% Percentile Bootstrap UCL 211.4
Kolmogorov-Smirnov 5% Critical Value	0.169	95% BCA Bootstrap UCL 223.2
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 308.4
		97.5% Chebyshev(Mean, Sd) UCL 377
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 511.6
95% Approximate Gamma UCL	223.1	
95% Adjusted Gamma UCL	228.6	

Potential UCL to Use	Use 95% Approximate Gamma UCL 223.1

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	28	Number of Distinct Observations	27

Raw Statistics		**Log-transformed Statistics**	
Minimum	108.1	Minimum of Log Data	4.683
Maximum	627	Maximum of Log Data	6.441
Mean	259	Mean of log Data	5.445
Median	263	SD of log Data	0.487
SD	125.2		
Coefficient of Variation	0.483		
Skewness	0.909		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.912	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.924	Shapiro Wilk Critical Value	0.924
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	299.3	95% H-UCL	312.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	367.8
95% Adjusted-CLT UCL (Chen-1995)	302.2	97.5% Chebyshev (MVUE) UCL	414.6
95% Modified-t UCL (Johnson-1978)	300	99% Chebyshev (MVUE) UCL	506.6

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.157	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	62.31	
MLE of Mean	259	
MLE of Standard Deviation	127	
nu star	232.8	
Approximate Chi Square Value (.05)	198.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.0404	95% CLT UCL 297.9
Adjusted Chi Square Value	196.5	95% Jackknife UCL 299.3
		95% Standard Bootstrap UCL 296.5
Anderson-Darling Test Statistic	0.546	95% Bootstrap-t UCL 305.9
Anderson-Darling 5% Critical Value	0.749	95% Hall's Bootstrap UCL 307.2
Kolmogorov-Smirnov Test Statistic	0.122	95% Percentile Bootstrap UCL 297.5
Kolmogorov-Smirnov 5% Critical Value	0.166	95% BCA Bootstrap UCL 299.2
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 362.1
		97.5% Chebyshev(Mean, Sd) UCL 406.7
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 494.3
95% Approximate Gamma UCL	303.8	
95% Adjusted Gamma UCL	306.8	

Potential UCL to Use	Use 95% Approximate Gamma UCL 303.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	29	Number of Detected Data	15
Number of Distinct Detected Data	14	Number of Non-Detect Data	14
		Percent Non-Detects	48.28%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.051	Minimum Detected	-2.976
Maximum Detected	1.1	Maximum Detected	0.0953
Mean of Detected	0.418	Mean of Detected	-1.288
SD of Detected	0.358	SD of Detected	1.012
Minimum Non-Detect	0.0524	Minimum Non-Detect	-2.949
Maximum Non-Detect	1.5	Maximum Non-Detect	0.405

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	29
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.852	Shapiro Wilk Test Statistic	0.922
5% Shapiro Wilk Critical Value	0.881	5% Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.298	Mean	-1.784
SD	0.314	SD	1.145
95% DL/2 (t) UCL	0.397	95% H-Stat (DL/2) UCL	0.574
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.974
		SD in Log Scale	1.059
		Mean in Original Scale	0.251
		SD in Original Scale	0.309
		95% t UCL	0.349
		95% Percentile Bootstrap UCL	0.351
		95% BCA Bootstrap UCL	0.368

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	1.12	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.373		
nu star	33.59		
A-D Test Statistic	0.496	**Nonparametric Statistics**	
5% A-D Critical Value	0.757	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.757	Mean	0.266
5% K-S Critical Value	0.226	SD	0.308
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0615
		95% KM (t) UCL	0.37
Assuming Gamma Distribution		95% KM (z) UCL	0.367
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.363
Minimum	0.051	95% KM (bootstrap t) UCL	0.395
Maximum	1.1	95% KM (BCA) UCL	0.376
Mean	0.41	95% KM (Percentile Bootstrap) UCL	0.371
Median	0.38	95% KM (Chebyshev) UCL	0.534
SD	0.274	97.5% KM (Chebyshev) UCL	0.649
k star	1.943	99% KM (Chebyshev) UCL	0.877
Theta star	0.211		
Nu star	112.7	**Potential UCLs to Use**	
AppChi2	89.17	95% KM (t) UCL	0.37
95% Gamma Approximate UCL	0.518		
95% Adjusted Gamma UCL	0.525		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	29	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	26
		Percent Non-Detects	89.66%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.5	Minimum Detected	0.405
Maximum Detected	2.6	Maximum Detected	0.956
Mean of Detected	1.933	Mean of Detected	0.631
SD of Detected	0.586	SD of Detected	0.288
Minimum Non-Detect	1.2	Minimum Non-Detect	0.182
Maximum Non-Detect	29.2	Maximum Non-Detect	3.374

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	29
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.881	Shapiro Wilk Test Statistic	0.91
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.295	Mean	-0.173
SD	2.594	SD	0.646
95% DL/2 (t) UCL	2.115	95% H-Stat (DL/2) UCL	1.335
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.567
		SD in Log Scale	0.561
		Mean in Original Scale	0.676
		SD in Original Scale	0.5
		95% t UCL	0.833
		95% Percentile Bootstrap UCL	0.835
		95% BCA Bootstrap UCL	0.885

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.547
5% K-S Critical Value	N/A	SD	0.206
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0478
		95% KM (t) UCL	1.628
Assuming Gamma Distribution		95% KM (z) UCL	1.625
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.682
Minimum	N/A	95% KM (bootstrap t) UCL	1.689
Maximum	N/A	95% KM (BCA) UCL	2.6

TABLE D-2f
ProUCL Output for Aggregate Soil- Area F
Scovill Industrial Landfill Site
Waterbury, Connecticut

Mean	N/A	95% KM (Percentile Bootstrap) UCL	2.6
Median	N/A	95% KM (Chebyshev) UCL	1.755
SD	N/A	97.5% KM (Chebyshev) UCL	1.845
k star	N/A	99% KM (Chebyshev) UCL	2.022
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	1.628
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	2.6
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	29

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.7	Minimum of Log Data	2.272
Maximum	218	Maximum of Log Data	5.384
Mean	41.04	Mean of log Data	3.442
Median	27.3	SD of log Data	0.677
SD	41.87		
Coefficient of Variation	1.02		
Skewness	3.206		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.606	Shapiro Wilk Test Statistic	0.922
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	54.27	95% H-UCL	51.44
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	61.86
95% Adjusted-CLT UCL (Chen-1995)	58.77	97.5% Chebyshev (MVUE) UCL	71.79
95% Modified-t UCL (Johnson-1978)	55.04	99% Chebyshev (MVUE) UCL	91.3

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.801	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	22.78		
MLE of Mean	41.04		
MLE of Standard Deviation	30.58		
nu star	104.5		
Approximate Chi Square Value (.05)	81.89	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0407	95% CLT UCL	53.83
Adjusted Chi Square Value	80.69	95% Jackknife UCL	54.27
		95% Standard Bootstrap UCL	53.76
Anderson-Darling Test Statistic	1.749	95% Bootstrap-t UCL	68.46
Anderson-Darling 5% Critical Value	0.757	95% Hall's Bootstrap UCL	107.6
Kolmogorov-Smirnov Test Statistic	0.236	95% Percentile Bootstrap UCL	54.79
Kolmogorov-Smirnov 5% Critical Value	0.165	95% BCA Bootstrap UCL	61.83
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	74.93
		97.5% Chebyshev(Mean, Sd) UCL	89.59
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	118.4
95% Approximate Gamma UCL	52.36		
95% Adjusted Gamma UCL	53.14		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 74.93

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	29

Raw Statistics		**Log-transformed Statistics**	
Minimum	23.7	Minimum of Log Data	3.165
Maximum	8440	Maximum of Log Data	9.041
Mean	997.3	Mean of log Data	5.825
Median	314	SD of log Data	1.543
SD	1729		
Coefficient of Variation	1.734		
Skewness	3.305		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.585	Shapiro Wilk Test Statistic	0.962
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1543	95% H-UCL	2839
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2648
95% Adjusted-CLT UCL (Chen-1995)	1736	97.5% Chebyshev (MVUE) UCL	3350
95% Modified-t UCL (Johnson-1978)	1576	99% Chebyshev (MVUE) UCL	4728

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.539	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	1850	
MLE of Mean	997.3	
MLE of Standard Deviation	1358	
nu star	31.26	
Approximate Chi Square Value (.05)	19.49	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 1525
Adjusted Chi Square Value	18.93	95% Jackknife UCL 1543
		95% Standard Bootstrap UCL 1521
Anderson-Darling Test Statistic	0.903	95% Bootstrap-t UCL 2074
Anderson-Darling 5% Critical Value	0.803	95% Hall's Bootstrap UCL 3864
Kolmogorov-Smirnov Test Statistic	0.163	95% Percentile Bootstrap UCL 1573
Kolmogorov-Smirnov 5% Critical Value	0.171	95% BCA Bootstrap UCL 1829
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2397
		97.5% Chebyshev(Mean, Sd) UCL 3002
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 4192
95% Approximate Gamma UCL	1600	
95% Adjusted Gamma UCL	1647	

Potential UCL to Use	Use 95% Approximate Gamma UCL 1600

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2g
ProUCL Output for Aggregate Soil- Area G
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL\Aggregate_G-ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Benzo(a)anthracene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.21	Minimum of Log Data	-1.561
Maximum	0.81	Maximum of Log Data	-0.211
Mean	0.504	Mean of log Data	-0.787
Median	0.515	SD of log Data	0.5
SD	0.225		
Coefficient of Variation	0.447		
Skewness	0.0134		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.934	Shapiro Wilk Test Statistic	0.919
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.655	95% H-UCL	0.805
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.902
95% Adjusted-CLT UCL	0.635	97.5% Chebyshev (MVUE) UCL	1.073
95% Modified-t UCL	0.655	99% Chebyshev (MVUE) UCL	1.409

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.265	**Data appear Normal at 5% Significance Level**
Theta Star	0.154	
MLE of Mean	0.504	
MLE of Standard Deviation	0.279	
nu star	52.24	
Approximate Chi Square Value (.05)	36.64	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 0.635
Adjusted Chi Square Value	33.36	95% Jackknife UCL 0.655
		95% Standard Bootstrap UCL 0.628
Anderson-Darling Test Statistic	0.337	95% Bootstrap-t UCL 0.661
Anderson-Darling 5% Critical Value	0.719	95% Hall's Bootstrap UCL 0.62
Kolmogorov-Smirnov Test Statistic	0.197	95% Percentile Bootstrap UCL 0.626
Kolmogorov-Smirnov 5% Critical Value	0.295	95% BCA Bootstrap UCL 0.625
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.851
		97.5% Chebyshev(Mean, Sd) UCL 1.001
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.295
95% Approximate Gamma UCL	0.718	
95% Adjusted Gamma UCL	0.789	

Potential UCL to Use	
Use 95% Student's-t UCL	0.655

Benzo(a)pyrene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.12	Minimum of Log Data	-2.12
Maximum	0.92	Maximum of Log Data	-0.0834
Mean	0.506	Mean of log Data	-0.863
Median	0.475	SD of log Data	0.696
SD	0.29		
Coefficient of Variation	0.572		
Skewness	0.196		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.949	Shapiro Wilk Test Statistic	0.939
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.7	95% H-UCL	1.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.084
95% Adjusted-CLT UCL	0.682	97.5% Chebyshev (MVUE) UCL	1.329
95% Modified-t UCL	0.702	99% Chebyshev (MVUE) UCL	1.809

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.892	**Data appear Normal at 5% Significance Level**
Theta Star	0.268	
MLE of Mean	0.506	
MLE of Standard Deviation	0.368	
nu star	30.27	
Approximate Chi Square Value (.05)	18.71	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 0.675
Adjusted Chi Square Value	16.45	95% Jackknife UCL 0.7
		95% Standard Bootstrap UCL 0.668
Anderson-Darling Test Statistic	0.226	95% Bootstrap-t UCL 0.721
Anderson-Darling 5% Critical Value	0.722	95% Hall's Bootstrap UCL 0.672
Kolmogorov-Smirnov Test Statistic	0.148	95% Percentile Bootstrap UCL 0.666
Kolmogorov-Smirnov 5% Critical Value	0.296	95% BCA Bootstrap UCL 0.668
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.953
		97.5% Chebyshev(Mean, Sd) UCL 1.146
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 1.526
95% Approximate Gamma UCL	0.819	
95% Adjusted Gamma UCL	0.932	

Potential UCL to Use		
		Use 95% Student's-t UCL 0.7

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	8	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	1
		Percent Non-Detects	12.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.2	Minimum Detected	-1.609
Maximum Detected	1.1	Maximum Detected	0.0953
Mean of Detected	0.754	Mean of Detected	-0.392
SD of Detected	0.298	SD of Detected	0.58
Minimum Non-Detect	1.5	Minimum Non-Detect	0.405
Maximum Non-Detect	1.5	Maximum Non-Detect	0.405

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.91	Shapiro Wilk Test Statistic	0.772
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.754	Mean	-0.379
SD	0.276	SD	0.538
95% DL/2 (t) UCL	0.939	95% H-Stat (DL/2) UCL	1.516
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.392
		SD in Log Scale	0.537
		Mean in Original Scale	0.744
		SD in Original Scale	0.278
		95% Percentile Bootstrap UCL	0.883
		95% BCA Bootstrap UCL	0.875

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.78	**Data appear Normal at 5% Significance Level**	
Theta Star	0.271		
nu star	38.92		
A-D Test Statistic	0.658	**Nonparametric Statistics**	
5% A-D Critical Value	0.71	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.71	Mean	0.754
5% K-S Critical Value	0.313	SD	0.276
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.113
		95% KM (t) UCL	0.968
Assuming Gamma Distribution		95% KM (z) UCL	0.94
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.97
Minimum	0.2	95% KM (bootstrap t) UCL	0.92
Maximum	1.1	95% KM (BCA) UCL	0.913
Mean	0.759	95% KM (Percentile Bootstrap) UCL	0.918
Median	0.795	95% KM (Chebyshev) UCL	1.246
SD	0.277	97.5% KM (Chebyshev) UCL	1.459
k star	3.422	99% KM (Chebyshev) UCL	1.877
Theta star	0.222		
Nu star	54.75	**Potential UCLs to Use**	
AppChi2	38.75	95% KM (t) UCL	0.968
95% Gamma Approximate UCL	1.072	95% KM (Percentile Bootstrap) UCL	0.918
95% Adjusted Gamma UCL	1.174		

Note: DL/2 is not a recommended method.

Carbazole

General Statistics

Number of Valid Data	8	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	3
		Percent Non-Detects	37.50%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.024	Minimum Detected	-3.73
Maximum Detected	0.13	Maximum Detected	-2.04
Mean of Detected	0.0756	Mean of Detected	-2.727
SD of Detected	0.0406	SD of Detected	0.646
Minimum Non-Detect	0.39	Minimum Non-Detect	-0.942
Maximum Non-Detect	1.5	Maximum Non-Detect	0.405

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.977	Shapiro Wilk Test Statistic	0.937
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.253	Mean	-1.989
SD	0.296	SD	1.2
95% DL/2 (t) UCL	0.451	95% H-Stat (DL/2) UCL	8.504
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.727
		SD in Log Scale	0.488
		Mean in Original Scale	0.0718
		SD in Original Scale	0.0312
		95% Percentile Bootstrap UCL	0.0894
		95% BCA Bootstrap UCL	0.0894

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.577	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0479		
nu star	15.77		
A-D Test Statistic	0.239	**Nonparametric Statistics**	
5% A-D Critical Value	0.682	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.682	Mean	0.0756
5% K-S Critical Value	0.359	SD	0.0363
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0182
		95% KM (t) UCL	0.11
Assuming Gamma Distribution		95% KM (z) UCL	0.105
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.112
Minimum	0.024	95% KM (bootstrap t) UCL	0.13
Maximum	0.13	95% KM (BCA) UCL	0.104
Mean	0.0764	95% KM (Percentile Bootstrap) UCL	0.105
Median	0.0779	95% KM (Chebyshev) UCL	0.155
SD	0.0307	97.5% KM (Chebyshev) UCL	0.189

TABLE D-2g
ProUCL Output for Aggregate Soil- Area G
Scovill Industrial Landfill Site
Waterbury, Connecticut

k star	3.631	99% KM (Chebyshev) UCL	0.256
Theta star	0.0211		
Nu star	58.09	**Potential UCLs to Use**	
AppChi2	41.57	95% KM (t) UCL	0.11
95% Gamma Approximate UCL	0.107	95% KM (Percentile Bootstrap) UCL	0.105
95% Adjusted Gamma UCL	0.117		

Note: DL/2 is not a recommended method.

Chromium

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	6.4	Minimum of Log Data	1.856
Maximum	66.3	Maximum of Log Data	4.194
Mean	21.11	Mean of log Data	2.751
Median	17.4	SD of log Data	0.798
SD	19.65		
Coefficient of Variation	0.931		
Skewness	2.096		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.741	Shapiro Wilk Test Statistic	0.916
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	34.28	95% H-UCL	52.36
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	46.22
95% Adjusted-CLT UCL	38.04	97.5% Chebyshev (MVUE) UCL	57.34
95% Modified-t UCL	35.14	99% Chebyshev (MVUE) UCL	79.18

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.221	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	17.29	
MLE of Mean	21.11	
MLE of Standard Deviation	19.1	
nu star	19.54	
Approximate Chi Square Value (.05)	10.51	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 32.54
Adjusted Chi Square Value	8.889	95% Jackknife UCL 34.28
		95% Standard Bootstrap UCL 31.71
Anderson-Darling Test Statistic	0.451	95% Bootstrap-t UCL 48.29
Anderson-Darling 5% Critical Value	0.726	95% Hall's Bootstrap UCL 77.19
Kolmogorov-Smirnov Test Statistic	0.194	95% Percentile Bootstrap UCL 32.88
Kolmogorov-Smirnov 5% Critical Value	0.298	95% BCA Bootstrap UCL 38.15
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 51.4
		97.5% Chebyshev(Mean, Sd) UCL 64.51
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 90.25
95% Approximate Gamma UCL	39.24	
95% Adjusted Gamma UCL	46.42	

Potential UCL to Use	Use 95% Approximate Gamma UCL 39.24

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	8	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	2
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.028	Minimum Detected	-3.576
Maximum Detected	0.25	Maximum Detected	-1.386
Mean of Detected	0.129	Mean of Detected	-2.331
SD of Detected	0.0855	SD of Detected	0.915
Minimum Non-Detect	0.39	Minimum Non-Detect	-0.942
Maximum Non-Detect	1.5	Maximum Non-Detect	0.405

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.923	Shapiro Wilk Test Statistic	0.841
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.215	Mean	-1.989
SD	0.229	SD	1.063
95% DL/2 (t) UCL	0.368	95% H-Stat (DL/2) UCL	2.397
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.331
		SD in Log Scale	0.774
		Mean in Original Scale	0.121
		SD in Original Scale	0.0737
		95% Percentile Bootstrap UCL	0.16
		95% BCA Bootstrap UCL	0.166

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.076	**Data appear Normal at 5% Significance Level**	
Theta Star	0.12		
nu star	12.92		
A-D Test Statistic	0.499	**Nonparametric Statistics**	
5% A-D Critical Value	0.705	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.705	Mean	0.129
5% K-S Critical Value	0.336	SD	0.078
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0349
		95% KM (t) UCL	0.195
Assuming Gamma Distribution		95% KM (z) UCL	0.186
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.196
Minimum	0.028	95% KM (bootstrap t) UCL	0.195
Maximum	0.25	95% KM (BCA) UCL	0.183
Mean	0.129	95% KM (Percentile Bootstrap) UCL	0.182
Median	0.129	95% KM (Chebyshev) UCL	0.281
SD	0.0722	97.5% KM (Chebyshev) UCL	0.347

k star	1.664	99% KM (Chebyshev) UCL	0.476
Theta star	0.0773		
Nu star	26.62	**Potential UCLs to Use**	
AppChi2	15.86	95% KM (t) UCL	0.195
95% Gamma Approximate UCL	0.216	95% KM (Percentile Bootstrap) UCL	0.182
95% Adjusted Gamma UCL	0.248		

Note: DL/2 is not a recommended method.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.061	Minimum of Log Data	-2.797
Maximum	0.57	Maximum of Log Data	-0.562
Mean	0.254	Mean of log Data	-1.644
Median	0.22	SD of log Data	0.82
SD	0.189		
Coefficient of Variation	0.744		
Skewness	0.825		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.891	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	0.38	95% H-UCL	0.685
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	0.588
95% Adjusted-CLT UCL	0.384	97.5% Chebyshev (MVUE) UCL	0.732
95% Modified-t UCL	0.383	99% Chebyshev (MVUE) UCL	1.013

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.327	**Data appear Normal at 5% Significance Level**
Theta Star	0.191	
MLE of Mean	0.254	
MLE of Standard Deviation	0.22	
nu star	21.23	
Approximate Chi Square Value (.05)	11.76	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 0.363
Adjusted Chi Square Value	10.03	95% Jackknife UCL 0.38
		95% Standard Bootstrap UCL 0.355
Anderson-Darling Test Statistic	0.251	95% Bootstrap-t UCL 0.464
Anderson-Darling 5% Critical Value	0.724	95% Hall's Bootstrap UCL 0.504
Kolmogorov-Smirnov Test Statistic	0.158	95% Percentile Bootstrap UCL 0.363
Kolmogorov-Smirnov 5% Critical Value	0.297	95% BCA Bootstrap UCL 0.373
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 0.544
		97.5% Chebyshev(Mean, Sd) UCL 0.67
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 0.917
95% Approximate Gamma UCL	0.458	
95% Adjusted Gamma UCL	0.537	

Potential UCL to Use	Use 95% Student's-t UCL 0.38

Aluminum

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	2500	Minimum of Log Data	7.824
Maximum	10800	Maximum of Log Data	9.287
Mean	6690	Mean of log Data	8.689
Median	6505	SD of log Data	0.558
SD	3089		
Coefficient of Variation	0.462		
Skewness	-0.136		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.928	Shapiro Wilk Test Statistic	0.868
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	8759	95% H-UCL	11650
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12704
95% Adjusted-CLT UCL	8430	97.5% Chebyshev (MVUE) UCL	15261
95% Modified-t UCL	8750	99% Chebyshev (MVUE) UCL	20286

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.807	**Data appear Normal at 5% Significance Level**
Theta Star	2383	
MLE of Mean	6690	
MLE of Standard Deviation	3993	
nu star	44.92	
Approximate Chi Square Value (.05)	30.54	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 8486
Adjusted Chi Square Value	27.58	95% Jackknife UCL 8759
		95% Standard Bootstrap UCL 8381
Anderson-Darling Test Statistic	0.429	95% Bootstrap-t UCL 8664
Anderson-Darling 5% Critical Value	0.719	95% Hall's Bootstrap UCL 8531
Kolmogorov-Smirnov Test Statistic	0.212	95% Percentile Bootstrap UCL 8259
Kolmogorov-Smirnov 5% Critical Value	0.295	95% BCA Bootstrap UCL 8356
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 11450
		97.5% Chebyshev(Mean, Sd) UCL 13510
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 17556
95% Approximate Gamma UCL	9838	
95% Adjusted Gamma UCL	10896	

Potential UCL to Use		
		Use 95% Student's-t UCL 8759

Antimony

General Statistics

Number of Valid Data	5	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	3
		Percent Non-Detects	60.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.2	Minimum Detected	1.435
Maximum Detected	40.7	Maximum Detected	3.706
Mean of Detected	22.45	Mean of Detected	2.571
SD of Detected	25.81	SD of Detected	1.606
Minimum Non-Detect	0.685	Minimum Non-Detect	-0.378
Maximum Non-Detect	6.5	Maximum Non-Detect	1.872

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	4
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	80.00%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.793	Mean	0.899
SD	17.36	SD	1.928
95% DL/2 (t) UCL	26.34	95% H-Stat (DL/2) UCL	2781
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	11.5
5% K-S Critical Value	N/A	SD	14.6
Data not Gamma Distributed at 5% Significance Level		SE of Mean	9.234
		95% KM (t) UCL	31.19
Assuming Gamma Distribution		95% KM (z) UCL	26.69
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	42.37

TABLE D-2g
ProUCL Output for Aggregate Soil- Area G
Scovill Industrial Landfill Site
Waterbury, Connecticut

Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	40.7
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	51.75
SD	N/A	97.5% KM (Chebyshev) UCL	69.17
k star	N/A	99% KM (Chebyshev) UCL	103.4
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	97.5% KM (Chebyshev) UCL	69.17
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Warning: Recommended UCL exceeds the maximum observation

Note: DL/2 is not a recommended method.

Arsenic

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	3	Minimum of Log Data	1.099
Maximum	20.7	Maximum of Log Data	3.03
Mean	7.875	Mean of log Data	1.86
Median	5.5	SD of log Data	0.65
SD	5.97		
Coefficient of Variation	0.758		
Skewness	1.72		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.797	Shapiro Wilk Test Statistic	0.929
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	11.87	95% H-UCL	15.17
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15.54
95% Adjusted-CLT UCL	12.72	97.5% Chebyshev (MVUE) UCL	18.93
95% Modified-t UCL	12.09	99% Chebyshev (MVUE) UCL	25.59

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.717	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	4.587	
MLE of Mean	7.875	
MLE of Standard Deviation	6.01	
nu star	27.47	
Approximate Chi Square Value (.05)	16.51	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 11.35
Adjusted Chi Square Value	14.41	95% Jackknife UCL 11.87
		95% Standard Bootstrap UCL 11.15
Anderson-Darling Test Statistic	0.449	95% Bootstrap-t UCL 18.05
Anderson-Darling 5% Critical Value	0.722	95% Hall's Bootstrap UCL 27.79
Kolmogorov-Smirnov Test Statistic	0.23	95% Percentile Bootstrap UCL 11.21
Kolmogorov-Smirnov 5% Critical Value	0.297	95% BCA Bootstrap UCL 12.41
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 17.08
		97.5% Chebyshev(Mean, Sd) UCL 21.06
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 28.88
95% Approximate Gamma UCL	13.1	
95% Adjusted Gamma UCL	15.01	

Potential UCL to Use	Use 95% Approximate Gamma UCL 13.1

Cadmium

General Statistics

Number of Valid Data	8	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	2
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.5	Minimum Detected	1.253
Maximum Detected	60.3	Maximum Detected	4.099
Mean of Detected	25.18	Mean of Detected	2.697
SD of Detected	24.24	SD of Detected	1.222
Minimum Non-Detect	0.228	Minimum Non-Detect	-1.477
Maximum Non-Detect	25.6	Maximum Non-Detect	3.243

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	75.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.86	Shapiro Wilk Test Statistic	0.903
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	20.5	Mean	2.07
SD	22.5	SD	2.001
95% DL/2 (t) UCL	35.57	95% H-Stat (DL/2) UCL	4633
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	2.234
		SD in Log Scale	1.422
		Mean in Original Scale	19.71
		SD in Original Scale	22.89
		95% Percentile Bootstrap UCL	32.82
		95% BCA Bootstrap UCL	34.99

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.652	**Data appear Normal at 5% Significance Level**	
Theta Star	38.65		
nu star	7.818		
A-D Test Statistic	0.338	**Nonparametric Statistics**	
5% A-D Critical Value	0.714	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.714	Mean	20.45
5% K-S Critical Value	0.34	SD	21.05
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	8.23
		95% KM (t) UCL	36.04
Assuming Gamma Distribution		95% KM (z) UCL	33.98
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	35.71
Minimum	3.5	95% KM (bootstrap t) UCL	46.86
Maximum	60.3	95% KM (BCA) UCL	34.96
Mean	22.45	95% KM (Percentile Bootstrap) UCL	34.44
Median	16.95	95% KM (Chebyshev) UCL	56.32
SD	21.65	97.5% KM (Chebyshev) UCL	71.84
k star	0.809	99% KM (Chebyshev) UCL	102.3
Theta star	27.73		

TABLE D-2g
ProUCL Output for Aggregate Soil- Area G
Scovill Industrial Landfill Site
Waterbury, Connecticut

Nu star	12.95
AppChi2	5.86
95% Gamma Approximate UCL	49.61
95% Adjusted Gamma UCL	61.73

Potential UCLs to Use

95% KM (t) UCL	36.04
95% KM (Percentile Bootstrap) UCL	34.44

Note: DL/2 is not a recommended method.

Cobalt

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.2	Minimum of Log Data	1.435
Maximum	13.7	Maximum of Log Data	2.617
Mean	7.388	Mean of log Data	1.917
Median	6.35	SD of log Data	0.426
SD	3.38		
Coefficient of Variation	0.458		
Skewness	1.109		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.878	Shapiro Wilk Test Statistic	0.937
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9.652	95% H-UCL	10.66
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12.22
95% Adjusted-CLT UCL	9.854	97.5% Chebyshev (MVUE) UCL	14.32
95% Modified-t UCL	9.73	99% Chebyshev (MVUE) UCL	18.46

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.951	**Data appear Normal at 5% Significance Level**
Theta Star	1.87	
MLE of Mean	7.388	
MLE of Standard Deviation	3.717	
nu star	63.21	
Approximate Chi Square Value (.05)	45.92	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 9.353
Adjusted Chi Square Value	42.22	95% Jackknife UCL 9.652
		95% Standard Bootstrap UCL 9.241
Anderson-Darling Test Statistic	0.328	95% Bootstrap-t UCL 11.01
Anderson-Darling 5% Critical Value	0.718	95% Hall's Bootstrap UCL 13.9
Kolmogorov-Smirnov Test Statistic	0.166	95% Percentile Bootstrap UCL 9.313
Kolmogorov-Smirnov 5% Critical Value	0.295	95% BCA Bootstrap UCL 9.713
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 12.6
		97.5% Chebyshev(Mean, Sd) UCL 14.85
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 19.28
95% Approximate Gamma UCL	10.17	
95% Adjusted Gamma UCL	11.06	

Potential UCL to Use	Use 95% Student's-t UCL 9.652

Iron

General Statistics

Number of Valid Observations 4 Number of Distinct Observations 4

Warning: This data set only has 4 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable Iron was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Lead

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	21.3	Minimum of Log Data	3.059
Maximum	2960	Maximum of Log Data	7.993
Mean	775.2	Mean of log Data	5.697
Median	424	SD of log Data	1.666
SD	1031		
Coefficient of Variation	1.33		
Skewness	1.733		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.756	Shapiro Wilk Test Statistic	0.965
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1466	95% H-UCL	31554
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	3139
95% Adjusted-CLT UCL	1613	97.5% Chebyshev (MVUE) UCL	4114
95% Modified-t UCL	1503	99% Chebyshev (MVUE) UCL	6031

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.484	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1603	
MLE of Mean	775.2	
MLE of Standard Deviation	1115	
nu star	7.737	
Approximate Chi Square Value (.05)	2.584	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 1375
Adjusted Chi Square Value	1.895	95% Jackknife UCL 1466
		95% Standard Bootstrap UCL 1354
Anderson-Darling Test Statistic	0.26	95% Bootstrap-t UCL 3203
Anderson-Darling 5% Critical Value	0.753	95% Hall's Bootstrap UCL 5099
Kolmogorov-Smirnov Test Statistic	0.193	95% Percentile Bootstrap UCL 1363
Kolmogorov-Smirnov 5% Critical Value	0.306	95% BCA Bootstrap UCL 1491
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2364
		97.5% Chebyshev(Mean, Sd) UCL 3051
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 4401
95% Approximate Gamma UCL	2321	
95% Adjusted Gamma UCL	3166	

Potential UCL to Use		Use 95% Approximate Gamma UCL	2321

Manganese

General Statistics

Number of Valid Observations 4 Number of Distinct Observations 4

Warning: This data set only has 4 observations!

Data set is too small to compute reliable and meaningful statistics and estimates!

The data set for variable Manganese was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!

If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Mercury

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	7

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.1	Minimum of Log Data	-2.303
Maximum	2.9	Maximum of Log Data	1.065
Mean	0.891	Mean of log Data	-0.65
Median	0.665	SD of log Data	1.167
SD	0.936		
Coefficient of Variation	1.05		
Skewness	1.586		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.806	Shapiro Wilk Test Statistic	0.935
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.518	95% H-UCL	5.64
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2.594
95% Adjusted-CLT UCL	1.634	97.5% Chebyshev (MVUE) UCL	3.321
95% Modified-t UCL	1.549	99% Chebyshev (MVUE) UCL	4.748

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.752	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.185	
MLE of Mean	0.891	
MLE of Standard Deviation	1.028	
nu star	12.03	
Approximate Chi Square Value (.05)	5.249	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 1.436
Adjusted Chi Square Value	4.173	95% Jackknife UCL 1.518
		95% Standard Bootstrap UCL 1.395
Anderson-Darling Test Statistic	0.386	95% Bootstrap-t UCL 1.898
Anderson-Darling 5% Critical Value	0.735	95% Hall's Bootstrap UCL 3.044
Kolmogorov-Smirnov Test Statistic	0.205	95% Percentile Bootstrap UCL 1.45
Kolmogorov-Smirnov 5% Critical Value	0.301	95% BCA Bootstrap UCL 1.58
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 2.334
		97.5% Chebyshev(Mean, Sd) UCL 2.958
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 4.184
95% Approximate Gamma UCL	2.043	
95% Adjusted Gamma UCL	2.57	

Potential UCL to Use	Use 95% Approximate Gamma UCL 2.043

Nickel

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	11.2	Minimum of Log Data	2.416
Maximum	430	Maximum of Log Data	6.064
Mean	98.15	Mean of log Data	3.845
Median	51.95	SD of log Data	1.287
SD	140.9		
Coefficient of Variation	1.436		
Skewness	2.349		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.671	Shapiro Wilk Test Statistic	0.928
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	192.5	95% H-UCL	811.6
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	276.9
95% Adjusted-CLT UCL	224.3	97.5% Chebyshev (MVUE) UCL	357
95% Modified-t UCL	199.4	99% Chebyshev (MVUE) UCL	514.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.584	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	168.2	
MLE of Mean	98.15	
MLE of Standard Deviation	128.5	
nu star	9.337	
Approximate Chi Square Value (.05)	3.532	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 180.1
Adjusted Chi Square Value	2.69	95% Jackknife UCL 192.5
		95% Standard Bootstrap UCL 174.5
Anderson-Darling Test Statistic	0.444	95% Bootstrap-t UCL 423.3
Anderson-Darling 5% Critical Value	0.743	95% Hall's Bootstrap UCL 533.9
Kolmogorov-Smirnov Test Statistic	0.198	95% Percentile Bootstrap UCL 188.2
Kolmogorov-Smirnov 5% Critical Value	0.304	95% BCA Bootstrap UCL 208.6
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 315.3
		97.5% Chebyshev(Mean, Sd) UCL 409.2
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 593.8
95% Approximate Gamma UCL	259.5	
95% Adjusted Gamma UCL	340.7	

Potential UCL to Use	Use 95% Approximate Gamma UCL 259.5

Thallium

General Statistics

Number of Valid Data	8	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	7
		Percent Non-Detects	87.50%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Thallium was not processed!

Zinc

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	43.9	Minimum of Log Data	3.782
Maximum	22800	Maximum of Log Data	10.03
Mean	8334	Mean of log Data	7.8
Median	5040	SD of log Data	2.218
SD	9095		
Coefficient of Variation	1.091		
Skewness	0.659		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set,
the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.853	Shapiro Wilk Test Statistic	0.907
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14427	95% H-UCL	8237543
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	62091
95% Adjusted-CLT UCL	14424	97.5% Chebyshev (MVUE) UCL	82546
95% Modified-t UCL	14551	99% Chebyshev (MVUE) UCL	122727

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.405	**Data appear Normal at 5% Significance Level**
Theta Star	20577	
MLE of Mean	8334	
MLE of Standard Deviation	13096	
nu star	6.481	
Approximate Chi Square Value (.05)	1.89	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 13624
Adjusted Chi Square Value	1.33	95% Jackknife UCL 14427
		95% Standard Bootstrap UCL 13259
Anderson-Darling Test Statistic	0.316	95% Bootstrap-t UCL 15855
Anderson-Darling 5% Critical Value	0.761	95% Hall's Bootstrap UCL 13349
Kolmogorov-Smirnov Test Statistic	0.175	95% Percentile Bootstrap UCL 13557
Kolmogorov-Smirnov 5% Critical Value	0.309	95% BCA Bootstrap UCL 13912
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 22351
		97.5% Chebyshev(Mean, Sd) UCL 28416
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 40330
95% Approximate Gamma UCL	28575	
95% Adjusted Gamma UCL	40622	

Potential UCL to Use	Use 95% Student's-t UCL 14427

Vanadium

General Statistics

Number of Valid Observations	8	Number of Distinct Observations	8

Raw Statistics		**Log-transformed Statistics**	
Minimum	11.9	Minimum of Log Data	2.477
Maximum	54.3	Maximum of Log Data	3.995
Mean	25.29	Mean of log Data	3.109
Median	21.55	SD of log Data	0.509
SD	14.35		
Coefficient of Variation	0.567		
Skewness	1.43		

Warning: There are only 8 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.846	Shapiro Wilk Test Statistic	0.948
Shapiro Wilk Critical Value	0.818	Shapiro Wilk Critical Value	0.818
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	34.9	95% H-UCL	40.22
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	44.91
95% Adjusted-CLT UCL	36.37	97.5% Chebyshev (MVUE) UCL	53.5
95% Modified-t UCL	35.32	99% Chebyshev (MVUE) UCL	70.37

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.768	**Data appear Normal at 5% Significance Level**
Theta Star	9.135	
MLE of Mean	25.29	
MLE of Standard Deviation	15.2	
nu star	44.29	
Approximate Chi Square Value (.05)	30.03	**Nonparametric Statistics**
Adjusted Level of Significance	0.0195	95% CLT UCL 33.63
Adjusted Chi Square Value	27.09	95% Jackknife UCL 34.9
		95% Standard Bootstrap UCL 33.09
Anderson-Darling Test Statistic	0.361	95% Bootstrap-t UCL 46.38
Anderson-Darling 5% Critical Value	0.719	95% Hall's Bootstrap UCL 85.96
Kolmogorov-Smirnov Test Statistic	0.231	95% Percentile Bootstrap UCL 33.7
Kolmogorov-Smirnov 5% Critical Value	0.295	95% BCA Bootstrap UCL 35.65
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 47.4
		97.5% Chebyshev(Mean, Sd) UCL 56.96
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 75.75
95% Approximate Gamma UCL	37.3	
95% Adjusted Gamma UCL	41.34	

Potential UCL to Use	
Use 95% Student's-t UCL	34.9

TABLE D-2h
ProUCL Output for Aggregate Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_H-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	15

Raw Statistics		**Log-transformed Statistics**	
Minimum	1500	Minimum of Log Data	7.313
Maximum	11100	Maximum of Log Data	9.315
Mean	6533	Mean of log Data	8.687
Median	6210	SD of log Data	0.502
SD	2643		
Coefficient of Variation	0.405		
Skewness	0.105		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.972	Shapiro Wilk Test Statistic	0.891
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	7735	95% H-UCL	8870
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10532
95% Adjusted-CLT UCL (Chen-1995)	7675	97.5% Chebyshev (MVUE) UCL	12209
95% Modified-t UCL (Johnson-1978)	7738	99% Chebyshev (MVUE) UCL	15502

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.261	**Data appear Normal at 5% Significance Level**
Theta Star	1533	
MLE of Mean	6533	
MLE of Standard Deviation	3165	
nu star	127.8	
Approximate Chi Square Value (.05)	102.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.0324	95% CLT UCL 7655
Adjusted Chi Square Value	99.96	95% Jackknife UCL 7735
		95% Standard Bootstrap UCL 7627
Anderson-Darling Test Statistic	0.298	95% Bootstrap-t UCL 7778
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL 7788
Kolmogorov-Smirnov Test Statistic	0.122	95% Percentile Bootstrap UCL 7565
Kolmogorov-Smirnov 5% Critical Value	0.222	95% BCA Bootstrap UCL 7651
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 9508
		97.5% Chebyshev(Mean, Sd) UCL 10795
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 13324
95% Approximate Gamma UCL	8130	
95% Adjusted Gamma UCL	8355	

Potential UCL to Use	Use 95% Student's-t UCL 7735

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	15	Number of Detected Data	14
Number of Distinct Detected Data	13	Number of Non-Detect Data	1
		Percent Non-Detects	6.67%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.92	Minimum Detected	-0.0834
Maximum Detected	22.6	Maximum Detected	3.118
Mean of Detected	6.216	Mean of Detected	1.346
SD of Detected	7.234	SD of Detected	0.973
Minimum Non-Detect	8.7	Minimum Non-Detect	2.163
Maximum Non-Detect	8.7	Maximum Non-Detect	2.163

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.675	Shapiro Wilk Test Statistic	0.938
5% Shapiro Wilk Critical Value	0.874	5% Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.091	Mean	1.354
SD	6.987	SD	0.938
95% DL/2 (t) UCL	9.269	95% H-Stat (DL/2) UCL	11.68
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	1.326
		SD in Log Scale	0.941
		Mean in Original Scale	5.991
		SD in Original Scale	7.025
		95% t UCL	9.185
		95% Percentile Bootstrap UCL	9.011
		95% BCA Bootstrap UCL	9.989

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.973	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	6.391		
nu star	27.23		
A-D Test Statistic	0.781	**Nonparametric Statistics**	
5% A-D Critical Value	0.757	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.757	Mean	6.001
5% K-S Critical Value	0.234	SD	6.794
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	1.824
		95% KM (t) UCL	9.213
Assuming Gamma Distribution		95% KM (z) UCL	9.001
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	9.207
Minimum	0.92	95% KM (bootstrap t) UCL	15.02
Maximum	22.6	95% KM (BCA) UCL	9.344
Mean	6.111	95% KM (Percentile Bootstrap) UCL	9.127
Median	3.7	95% KM (Chebyshev) UCL	13.95
SD	6.982	97.5% KM (Chebyshev) UCL	17.39
k star	1.042	99% KM (Chebyshev) UCL	24.15
Theta star	5.864		
Nu star	31.26	**Potential UCLs to Use**	
AppChi2	19.49	95% KM (Chebyshev) UCL	13.95
95% Gamma Approximate UCL	9.804		
95% Adjusted Gamma UCL	10.41		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Barium

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	15

Raw Statistics		**Log-transformed Statistics**	
Minimum	7.9	Minimum of Log Data	2.067
Maximum	5200	Maximum of Log Data	8.556
Mean	435.6	Mean of log Data	4.318
Median	54.2	SD of log Data	1.497
SD	1326		
Coefficient of Variation	3.044		
Skewness	3.797		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.344	Shapiro Wilk Test Statistic	0.82
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1039	95% H-UCL	974
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	588
95% Adjusted-CLT UCL (Chen-1995)	1357	97.5% Chebyshev (MVUE) UCL	755.4
95% Modified-t UCL (Johnson-1978)	1095	99% Chebyshev (MVUE) UCL	1084

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.347	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	1257	
MLE of Mean	435.6	
MLE of Standard Deviation	739.9	
nu star	10.4	
Approximate Chi Square Value (.05)	4.192	**Nonparametric Statistics**
Adjusted Level of Significance	0.0324	95% CLT UCL 998.8
Adjusted Chi Square Value	3.719	95% Jackknife UCL 1039
		95% Standard Bootstrap UCL 992.5
Anderson-Darling Test Statistic	2.712	95% Bootstrap-t UCL 16630
Anderson-Darling 5% Critical Value	0.819	95% Hall's Bootstrap UCL 6301
Kolmogorov-Smirnov Test Statistic	0.4	95% Percentile Bootstrap UCL 1093
Kolmogorov-Smirnov 5% Critical Value	0.238	95% BCA Bootstrap UCL 1474
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1928
		97.5% Chebyshev(Mean, Sd) UCL 2574
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 3842
95% Approximate Gamma UCL	1080	
95% Adjusted Gamma UCL	1218	

Potential UCL to Use		Use 95% Chebyshev (Mean, Sd) UCL	1928

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	13

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.028	Minimum of Log Data	-3.576
Maximum	11	Maximum of Log Data	2.398
Mean	2.355	Mean of log Data	-0.339
Median	0.91	SD of log Data	1.803
SD	3.448		
Coefficient of Variation	1.464		
Skewness	1.854		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.706	Shapiro Wilk Test Statistic	0.966
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	3.987	95% H-UCL	30.77
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9.62
95% Adjusted-CLT UCL (Chen-1995)	4.358	97.5% Chebyshev (MVUE) UCL	12.55
95% Modified-t UCL (Johnson-1978)	4.063	99% Chebyshev (MVUE) UCL	18.31

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.462	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	5.102	
MLE of Mean	2.355	
MLE of Standard Deviation	3.466	
nu star	12.92	
Approximate Chi Square Value (.05)	5.842	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 3.87
Adjusted Chi Square Value	5.223	95% Jackknife UCL 3.987
		95% Standard Bootstrap UCL 3.811
Anderson-Darling Test Statistic	0.376	95% Bootstrap-t UCL 6.319
Anderson-Darling 5% Critical Value	0.791	95% Hall's Bootstrap UCL 10.51
Kolmogorov-Smirnov Test Statistic	0.154	95% Percentile Bootstrap UCL 3.898
Kolmogorov-Smirnov 5% Critical Value	0.241	95% BCA Bootstrap UCL 4.403
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 6.371
		97.5% Chebyshev(Mean, Sd) UCL 8.109
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 11.52
95% Approximate Gamma UCL	5.21	
95% Adjusted Gamma UCL	5.827	

Potential UCL to Use	Use 95% Approximate Gamma UCL 5.21

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	13

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.028	Minimum of Log Data	-3.576
Maximum	11	Maximum of Log Data	2.398
Mean	2.453	Mean of log Data	-0.28
Median	0.98	SD of log Data	1.796
SD	3.537		
Coefficient of Variation	1.442		
Skewness	1.796		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.709	Shapiro Wilk Test Statistic	0.959
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.128	95% H-UCL	31.71
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10.07
95% Adjusted-CLT UCL (Chen-1995)	4.493	97.5% Chebyshev (MVUE) UCL	13.14
95% Modified-t UCL (Johnson-1978)	4.203	99% Chebyshev (MVUE) UCL	19.16

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.467	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	5.253		
MLE of Mean	2.453		
MLE of Standard Deviation	3.59		
nu star	13.08		
Approximate Chi Square Value (.05)	5.945	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0312	95% CLT UCL	4.008
Adjusted Chi Square Value	5.32	95% Jackknife UCL	4.128
		95% Standard Bootstrap UCL	3.956
Anderson-Darling Test Statistic	0.402	95% Bootstrap-t UCL	5.948
Anderson-Darling 5% Critical Value	0.79	95% Hall's Bootstrap UCL	10.78
Kolmogorov-Smirnov Test Statistic	0.163	95% Percentile Bootstrap UCL	4.075
Kolmogorov-Smirnov 5% Critical Value	0.241	95% BCA Bootstrap UCL	4.436
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	6.574
		97.5% Chebyshev(Mean, Sd) UCL	8.357
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	11.86
95% Approximate Gamma UCL	5.397		
95% Adjusted Gamma UCL	6.031		

Potential UCL to Use	Use 95% Approximate Gamma UCL	5.397

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.032	Minimum of Log Data	-3.442
Maximum	12	Maximum of Log Data	2.485
Mean	2.934	Mean of log Data	0.0464
Median	1.26	SD of log Data	1.714
SD	3.93		
Coefficient of Variation	1.34		
Skewness	1.709		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.73	Shapiro Wilk Test Statistic	0.968
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	4.794	95% H-UCL	32.05
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	12.06
95% Adjusted-CLT UCL (Chen-1995)	5.174	97.5% Chebyshev (MVUE) UCL	15.68
95% Modified-t UCL (Johnson-1978)	4.874	99% Chebyshev (MVUE) UCL	22.8

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.519	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	5.652	
MLE of Mean	2.934	
MLE of Standard Deviation	4.072	
nu star	14.53	
Approximate Chi Square Value (.05)	6.938	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 4.661
Adjusted Chi Square Value	6.253	95% Jackknife UCL 4.794
		95% Standard Bootstrap UCL 4.565
Anderson-Darling Test Statistic	0.272	95% Bootstrap-t UCL 6.809
Anderson-Darling 5% Critical Value	0.784	95% Hall's Bootstrap UCL 12.6
Kolmogorov-Smirnov Test Statistic	0.14	95% Percentile Bootstrap UCL 4.686
Kolmogorov-Smirnov 5% Critical Value	0.24	95% BCA Bootstrap UCL 5.066
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.512
		97.5% Chebyshev(Mean, Sd) UCL 9.493
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 13.38
95% Approximate Gamma UCL	6.145	
95% Adjusted Gamma UCL	6.818	

Potential UCL to Use	Use 95% Approximate Gamma UCL 6.145

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(g,h,i)perylene

General Statistics

Number of Valid Data	14	Number of Detected Data	13
Number of Distinct Detected Data	13	Number of Non-Detect Data	1
		Percent Non-Detects	7.14%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.077	Minimum Detected	-2.564
Maximum Detected	5.7	Maximum Detected	1.74
Mean of Detected	1.301	Mean of Detected	-0.582
SD of Detected	1.694	SD of Detected	1.414
Minimum Non-Detect	0.52	Minimum Non-Detect	-0.654
Maximum Non-Detect	0.52	Maximum Non-Detect	-0.654

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.752	Shapiro Wilk Test Statistic	0.942
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.227	Mean	-0.637
SD	1.652	SD	1.374
95% DL/2 (t) UCL	2.009	95% H-Stat (DL/2) UCL	5.07
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.651
		SD in Log Scale	1.383
		Mean in Original Scale	1.224
		SD in Original Scale	1.654
		95% t UCL	2.006
		95% Percentile Bootstrap UCL	1.965
		95% BCA Bootstrap UCL	2.161

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.6	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	2.17		
nu star	15.59		
A-D Test Statistic	0.517	**Nonparametric Statistics**	
5% A-D Critical Value	0.773	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.773	Mean	1.224
5% K-S Critical Value	0.246	SD	1.594
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.443
		95% KM (t) UCL	2.009
Assuming Gamma Distribution		95% KM (z) UCL	1.953
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.007
Minimum	0.077	95% KM (bootstrap t) UCL	2.687
Maximum	5.7	95% KM (BCA) UCL	1.948
Mean	1.22	95% KM (Percentile Bootstrap) UCL	1.967
Median	0.4	95% KM (Chebyshev) UCL	3.157
SD	1.656	97.5% KM (Chebyshev) UCL	3.993
k star	0.593	99% KM (Chebyshev) UCL	5.636
Theta star	2.055		
Nu star	16.62	**Potential UCLs to Use**	
AppChi2	8.398	95% KM (Chebyshev) UCL	3.157
95% Gamma Approximate UCL	2.413		
95% Adjusted Gamma UCL	2.655		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	14	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	3
		Percent Non-Detects	21.43%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.026	Minimum Detected	-3.65
Maximum Detected	11	Maximum Detected	2.398
Mean of Detected	2.878	Mean of Detected	-0.0826
SD of Detected	3.838	SD of Detected	1.871
Minimum Non-Detect	0.71	Minimum Non-Detect	-0.342
Maximum Non-Detect	1.4	Maximum Non-Detect	0.336

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	6
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	57.14%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.753	Shapiro Wilk Test Statistic	0.96
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.37	Mean	-0.218
SD	3.515	SD	1.668
95% DL/2 (t) UCL	4.034	95% H-Stat (DL/2) UCL	20.72
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.0919	Mean in Log Scale	-0.417
SD	5.677	SD in Log Scale	1.771
95% MLE (t) UCL	2.779	Mean in Original Scale	2.303
95% MLE (Tiku) UCL	3.742	SD in Original Scale	3.555
		95% t UCL	3.985
		95% Percentile Bootstrap UCL	4.033
		95% BCA Bootstrap UCL	4.315

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.46	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	6.254		
nu star	10.12		
A-D Test Statistic	0.258	**Nonparametric Statistics**	
5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.777	Mean	2.315
5% K-S Critical Value	0.268	SD	3.419
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.959
		95% KM (t) UCL	4.013
Assuming Gamma Distribution		95% KM (z) UCL	3.892
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.995
Minimum	0.026	95% KM (bootstrap t) UCL	6.063
Maximum	11	95% KM (BCA) UCL	4.101
Mean	2.409	95% KM (Percentile Bootstrap) UCL	3.96
Median	0.689	95% KM (Chebyshev) UCL	6.494
SD	3.493	97.5% KM (Chebyshev) UCL	8.303
k star	0.521	99% KM (Chebyshev) UCL	11.85
Theta star	4.619		
Nu star	14.6	**Potential UCLs to Use**	
AppChi2	6.985	95% KM (Chebyshev) UCL	6.494
95% Gamma Approximate UCL	5.035		
95% Adjusted Gamma UCL	5.585		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	15	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	5
		Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.38	Minimum Detected	-0.968
Maximum Detected	17.7	Maximum Detected	2.874
Mean of Detected	3.647	Mean of Detected	0.513
SD of Detected	5.358	SD of Detected	1.277
Minimum Non-Detect	0.195	Minimum Non-Detect	-1.634
Maximum Non-Detect	4	Maximum Non-Detect	1.386

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	3
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	80.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.662	Shapiro Wilk Test Statistic	0.921
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.819	Mean	0.171
SD	4.494	SD	1.411
95% DL/2 (t) UCL	4.863	95% H-Stat (DL/2) UCL	11.79
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.077
		SD in Log Scale	1.441
		Mean in Original Scale	2.562
		SD in Original Scale	4.583
		95% t UCL	4.646
		95% Percentile Bootstrap UCL	4.64
		95% BCA Bootstrap UCL	5.817

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.602	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	6.061		
nu star	12.03		
A-D Test Statistic	0.623	**Nonparametric Statistics**	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	2.66
5% K-S Critical Value	0.276	SD	4.393
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.2
		95% KM (t) UCL	4.774
Assuming Gamma Distribution		95% KM (z) UCL	4.634
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.722
Minimum	0.38	95% KM (bootstrap t) UCL	8.158
Maximum	17.7	95% KM (BCA) UCL	4.872
Mean	3.327	95% KM (Percentile Bootstrap) UCL	4.757
Median	1.664	95% KM (Chebyshev) UCL	7.892
SD	4.35	97.5% KM (Chebyshev) UCL	10.16
k star	0.881	99% KM (Chebyshev) UCL	14.6
Theta star	3.778		
Nu star	26.42	**Potential UCLs to Use**	
AppChi2	15.7	95% KM (BCA) UCL	4.872
95% Gamma Approximate UCL	5.598		
95% Adjusted Gamma UCL	5.983		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	14	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	3
		Percent Non-Detects	21.43%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.02	Minimum Detected	-3.912
Maximum Detected	1.5	Maximum Detected	0.405
Mean of Detected	0.451	Mean of Detected	-1.633
SD of Detected	0.508	SD of Detected	1.557
Minimum Non-Detect	0.52	Minimum Non-Detect	-0.654
Maximum Non-Detect	1.4	Maximum Non-Detect	0.336

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	92.86%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.83	Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.448	Mean	-1.479
SD	0.455	SD	1.414
95% DL/2 (t) UCL	0.663	95% H-Stat (DL/2) UCL	2.467
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.744
		SD in Log Scale	1.385
		Mean in Original Scale	0.379
		SD in Original Scale	0.468
		95% t UCL	0.601
		95% Percentile Bootstrap UCL	0.584
		95% BCA Bootstrap UCL	0.646

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.584	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.771		
nu star	12.85		
A-D Test Statistic	0.264	**Nonparametric Statistics**	
5% A-D Critical Value	0.765	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.765	Mean	0.403
5% K-S Critical Value	0.265	SD	0.454
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.132
		95% KM (t) UCL	0.637
Assuming Gamma Distribution		95% KM (z) UCL	0.62
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.636
Minimum	0.02	95% KM (bootstrap t) UCL	0.758
Maximum	1.5	95% KM (BCA) UCL	0.614
Mean	0.435	95% KM (Percentile Bootstrap) UCL	0.623
Median	0.342	95% KM (Chebyshev) UCL	0.979
SD	0.447	97.5% KM (Chebyshev) UCL	1.228
k star	0.743	99% KM (Chebyshev) UCL	1.717
Theta star	0.585		
Nu star	20.82	**Potential UCLs to Use**	
AppChi2	11.45	95% KM (Chebyshev) UCL	0.979
95% Gamma Approximate UCL	0.791		
95% Adjusted Gamma UCL	0.859		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.4	Minimum of Log Data	1.482
Maximum	27.2	Maximum of Log Data	3.303
Mean	14.3	Mean of log Data	2.555
Median	11.9	SD of log Data	0.493
SD	6.565		
Coefficient of Variation	0.459		
Skewness	0.616		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.942	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	17.29	95% H-UCL	19.07
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	22.63
95% Adjusted-CLT UCL (Chen-1995)	17.38	97.5% Chebyshev (MVUE) UCL	26.19
95% Modified-t UCL (Johnson-1978)	17.33	99% Chebyshev (MVUE) UCL	33.19

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.957	**Data appear Normal at 5% Significance Level**
Theta Star	3.614	
MLE of Mean	14.3	
MLE of Standard Deviation	7.189	
nu star	118.7	
Approximate Chi Square Value (.05)	94.55	**Nonparametric Statistics**
Adjusted Level of Significance	0.0324	95% CLT UCL 17.09
Adjusted Chi Square Value	91.9	95% Jackknife UCL 17.29
		95% Standard Bootstrap UCL 17
Anderson-Darling Test Statistic	0.26	95% Bootstrap-t UCL 17.62
Anderson-Darling 5% Critical Value	0.739	95% Hall's Bootstrap UCL 17.74
Kolmogorov-Smirnov Test Statistic	0.128	95% Percentile Bootstrap UCL 17.03
Kolmogorov-Smirnov 5% Critical Value	0.222	95% BCA Bootstrap UCL 17.15
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 21.69
		97.5% Chebyshev(Mean, Sd) UCL 24.89
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 31.17
95% Approximate Gamma UCL	17.95	
95% Adjusted Gamma UCL	18.47	

Potential UCL to Use	Use 95% Student's-t UCL 17.29

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	13

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.8	Minimum of Log Data	0.588
Maximum	10.8	Maximum of Log Data	2.38
Mean	5.658	Mean of log Data	1.667
Median	5.47	SD of log Data	0.397
SD	2.027		
Coefficient of Variation	0.358		
Skewness	0.822		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.892	Shapiro Wilk Test Statistic	0.865
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.58	95% H-UCL	7.061
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.296
95% Adjusted-CLT UCL (Chen-1995)	6.638	97.5% Chebyshev (MVUE) UCL	9.419
95% Modified-t UCL (Johnson-1978)	6.599	99% Chebyshev (MVUE) UCL	11.63

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	6.256	**Data appear Normal at 5% Significance Level**	
Theta Star	0.904		
MLE of Mean	5.658		
MLE of Standard Deviation	2.262		
nu star	187.7		
Approximate Chi Square Value (.05)	157	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0324	95% CLT UCL	6.519
Adjusted Chi Square Value	153.5	95% Jackknife UCL	6.58
		95% Standard Bootstrap UCL	6.493
Anderson-Darling Test Statistic	0.835	95% Bootstrap-t UCL	6.788
Anderson-Darling 5% Critical Value	0.738	95% Hall's Bootstrap UCL	7.334
Kolmogorov-Smirnov Test Statistic	0.235	95% Percentile Bootstrap UCL	6.52
Kolmogorov-Smirnov 5% Critical Value	0.222	95% BCA Bootstrap UCL	6.531
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	7.94
		97.5% Chebyshev(Mean, Sd) UCL	8.927
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	10.87
95% Approximate Gamma UCL	6.764		
95% Adjusted Gamma UCL	6.916		

Potential UCL to Use		Use 95% Student's-t UCL	6.58

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	14	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	3
		Percent Non-Detects	21.43%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.049	Minimum Detected	-3.016
Maximum Detected	2.7	Maximum Detected	0.993
Mean of Detected	0.656	Mean of Detected	-1.208
SD of Detected	0.824	SD of Detected	1.394
Minimum Non-Detect	0.52	Minimum Non-Detect	-0.654
Maximum Non-Detect	1.4	Maximum Non-Detect	0.336

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	2
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	85.71%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.767	Shapiro Wilk Test Statistic	0.933
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.609	Mean	-1.146
SD	0.734	SD	1.245
95% DL/2 (t) UCL	0.956	95% H-Stat (DL/2) UCL	2.097
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.346
		SD in Log Scale	1.255
		Mean in Original Scale	0.549
		SD in Original Scale	0.753
		95% t UCL	0.905
		95% Percentile Bootstrap UCL	0.886
		95% BCA Bootstrap UCL	1.013

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.614	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.068		
nu star	13.5		
A-D Test Statistic	0.386	**Nonparametric Statistics**	
5% A-D Critical Value	0.762	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.762	Mean	0.562
5% K-S Critical Value	0.265	SD	0.727
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.206
		95% KM (t) UCL	0.927
Assuming Gamma Distribution		95% KM (z) UCL	0.901
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.924
Minimum	0.049	95% KM (bootstrap t) UCL	1.217
Maximum	2.7	95% KM (BCA) UCL	0.926
Mean	0.607	95% KM (Percentile Bootstrap) UCL	0.899
Median	0.362	95% KM (Chebyshev) UCL	1.46
SD	0.73	97.5% KM (Chebyshev) UCL	1.849
k star	0.768	99% KM (Chebyshev) UCL	2.613
Theta star	0.79		
Nu star	21.51	**Potential UCLs to Use**	
AppChi2	11.97	95% KM (Chebyshev) UCL	1.46
95% Gamma Approximate UCL	1.09		
95% Adjusted Gamma UCL	1.183		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dimethyl phthalate

General Statistics

Number of Valid Data	14	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	13
		Percent Non-Detects	92.86%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Dimethyl phthalate was not processed!

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Observations	14	Number of Distinct Observations	13

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.025	Minimum of Log Data	-3.689
Maximum	5.7	Maximum of Log Data	1.74
Mean	1.29	Mean of log Data	-0.755
Median	0.5	SD of log Data	1.623
SD	1.73		
Coefficient of Variation	1.341		
Skewness	1.648		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.751	Shapiro Wilk Test Statistic	0.957
Shapiro Wilk Critical Value	0.874	Shapiro Wilk Critical Value	0.874
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2.109	95% H-UCL	10.26
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	4.604
95% Adjusted-CLT UCL (Chen-1995)	2.269	97.5% Chebyshev (MVUE) UCL	5.962
95% Modified-t UCL (Johnson-1978)	2.143	99% Chebyshev (MVUE) UCL	8.628

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.527	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	2.448	
MLE of Mean	1.29	
MLE of Standard Deviation	1.777	
nu star	14.76	
Approximate Chi Square Value (.05)	7.094	**Nonparametric Statistics**
Adjusted Level of Significance	0.0312	95% CLT UCL 2.051
Adjusted Chi Square Value	6.401	95% Jackknife UCL 2.109
		95% Standard Bootstrap UCL 2.048
Anderson-Darling Test Statistic	0.473	95% Bootstrap-t UCL 2.669
Anderson-Darling 5% Critical Value	0.783	95% Hall's Bootstrap UCL 2.288
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL 2.084
Kolmogorov-Smirnov 5% Critical Value	0.24	95% BCA Bootstrap UCL 2.199
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3.306
		97.5% Chebyshev(Mean, Sd) UCL 4.178
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 5.891
95% Approximate Gamma UCL	2.684	
95% Adjusted Gamma UCL	2.975	

Potential UCL to Use		Use 95% Approximate Gamma UCL	2.684

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	899	Minimum of Log Data	6.801
Maximum	13800	Maximum of Log Data	9.532
Mean	10144	Mean of log Data	9.036
Median	11500	SD of log Data	0.86
SD	3968		
Coefficient of Variation	0.391		
Skewness	-1.889		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.79	Shapiro Wilk Test Statistic	0.577
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12604	95% H-UCL	29709
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	26447
95% Adjusted-CLT UCL (Chen-1995)	11430	97.5% Chebyshev (MVUE) UCL	32891
95% Modified-t UCL (Johnson-1978)	12465	99% Chebyshev (MVUE) UCL	45549

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.944	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	5218	
MLE of Mean	10144	
MLE of Standard Deviation	7276	
nu star	34.99	
Approximate Chi Square Value (.05)	22.46	**Nonparametric Statistics**
Adjusted Level of Significance	0.0231	95% CLT UCL 12320
Adjusted Chi Square Value	20.37	95% Jackknife UCL 12604
		95% Standard Bootstrap UCL 12181
Anderson-Darling Test Statistic	1.5	95% Bootstrap-t UCL 11988
Anderson-Darling 5% Critical Value	0.727	95% Hall's Bootstrap UCL 11659
Kolmogorov-Smirnov Test Statistic	0.345	95% Percentile Bootstrap UCL 11973
Kolmogorov-Smirnov 5% Critical Value	0.282	95% BCA Bootstrap UCL 11680
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15909
		97.5% Chebyshev(Mean, Sd) UCL 18404
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 23304
95% Approximate Gamma UCL	15806	
95% Adjusted Gamma UCL	17430	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 15909

Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	15

Raw Statistics		**Log-transformed Statistics**	
Minimum	6.3	Minimum of Log Data	1.841
Maximum	4970	Maximum of Log Data	8.511
Mean	399.8	Mean of log Data	4.145
Median	54.2	SD of log Data	1.603
SD	1266		
Coefficient of Variation	3.166		
Skewness	3.857		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.325	Shapiro Wilk Test Statistic	0.897
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	975.4	95% H-UCL	1162
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	594.4
95% Adjusted-CLT UCL (Chen-1995)	1285	97.5% Chebyshev (MVUE) UCL	767.8
95% Modified-t UCL (Johnson-1978)	1030	99% Chebyshev (MVUE) UCL	1108

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.334	**Data appear Lognormal at 5% Significance Level**	
Theta Star	1196		
MLE of Mean	399.8		
MLE of Standard Deviation	691.6		
nu star	10.03		
Approximate Chi Square Value (.05)	3.958	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0324	95% CLT UCL	937.4
Adjusted Chi Square Value	3.501	95% Jackknife UCL	975.4
		95% Standard Bootstrap UCL	896.3
Anderson-Darling Test Statistic	2.166	95% Bootstrap-t UCL	8870
Anderson-Darling 5% Critical Value	0.822	95% Hall's Bootstrap UCL	4340
Kolmogorov-Smirnov Test Statistic	0.367	95% Percentile Bootstrap UCL	1051
Kolmogorov-Smirnov 5% Critical Value	0.238	95% BCA Bootstrap UCL	1378
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1824
		97.5% Chebyshev(Mean, Sd) UCL	2441
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	3652
95% Approximate Gamma UCL	1013		
95% Adjusted Gamma UCL	1145		

Potential UCL to Use		Use 99% Chebyshev (Mean, Sd) UCL	3652

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	9	Number of Distinct Observations	9

Raw Statistics		**Log-transformed Statistics**	
Minimum	59.2	Minimum of Log Data	4.081
Maximum	464	Maximum of Log Data	6.14
Mean	209.3	Mean of log Data	5.168
Median	191	SD of log Data	0.654
SD	126.6		
Coefficient of Variation	0.605		
Skewness	0.932		

Warning: There are only 9 Values in this data
Note: It should be noted that even though bootstrap methods may be performed on this data set, the resulting calculations may not be reliable enough to draw conclusions

The literature suggests to use bootstrap methods on data sets having more than 10-15 observations.

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.941	Shapiro Wilk Test Statistic	0.977
Shapiro Wilk Critical Value	0.829	Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	287.8	95% H-UCL	391.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	417.3
95% Adjusted-CLT UCL (Chen-1995)	292.7	97.5% Chebyshev (MVUE) UCL	506.3
95% Modified-t UCL (Johnson-1978)	289.9	99% Chebyshev (MVUE) UCL	681.2

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	2.077	**Data appear Normal at 5% Significance Level**
Theta Star	100.8	
MLE of Mean	209.3	
MLE of Standard Deviation	145.2	
nu star	37.38	
Approximate Chi Square Value (.05)	24.39	**Nonparametric Statistics**
Adjusted Level of Significance	0.0231	95% CLT UCL 278.7
Adjusted Chi Square Value	22.2	95% Jackknife UCL 287.8
		95% Standard Bootstrap UCL 274.3
Anderson-Darling Test Statistic	0.139	95% Bootstrap-t UCL 309.8
Anderson-Darling 5% Critical Value	0.727	95% Hall's Bootstrap UCL 355.9
Kolmogorov-Smirnov Test Statistic	0.117	95% Percentile Bootstrap UCL 278.8
Kolmogorov-Smirnov 5% Critical Value	0.281	95% BCA Bootstrap UCL 288
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 393.2
		97.5% Chebyshev(Mean, Sd) UCL 472.8
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 629
95% Approximate Gamma UCL	320.9	
95% Adjusted Gamma UCL	352.5	

Potential UCL to Use	Use 95% Student's-t UCL 287.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Tetrachloroethene

General Statistics

Number of Valid Data	11	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	9
		Percent Non-Detects	81.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.001	Minimum Detected	-6.908
Maximum Detected	1	Maximum Detected	0
Mean of Detected	0.501	Mean of Detected	-3.454
SD of Detected	0.706	SD of Detected	4.885
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.014	Maximum Non-Detect	-4.269

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	90.91%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.093	Mean	-6.1
SD	0.301	SD	2.299
95% DL/2 (t) UCL	0.257	95% H-Stat (DL/2) UCL	2.202
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	N/A	
nu star	N/A	
A-D Test Statistic	N/A	**Nonparametric Statistics**
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method
K-S Test Statistic	N/A	Mean 0.0918
5% K-S Critical Value	N/A	SD 0.287
Data not Gamma Distributed at 5% Significance Level		SE of Mean 0.122

TABLE D-2h
ProUCL Output for Aggregate Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

		95% KM (t) UCL	0.314
Assuming Gamma Distribution		95% KM (z) UCL	0.293
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.781
Minimum	N/A	95% KM (bootstrap t) UCL	0.0918
Maximum	N/A	95% KM (BCA) UCL	1
Mean	N/A	95% KM (Percentile Bootstrap) UCL	1
Median	N/A	95% KM (Chebyshev) UCL	0.626
SD	N/A	97.5% KM (Chebyshev) UCL	0.857
k star	N/A	99% KM (Chebyshev) UCL	1.31
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	1.31
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Warning: Recommended UCL exceeds the maximum observation

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	15	Number of Detected Data	7
Number of Distinct Detected Data	5	Number of Non-Detect Data	8
		Percent Non-Detects	53.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.02	Minimum Detected	0.0198
Maximum Detected	1.7	Maximum Detected	0.531
Mean of Detected	1.374	Mean of Detected	0.302
SD of Detected	0.258	SD of Detected	0.191
Minimum Non-Detect	1.3	Minimum Non-Detect	0.262
Maximum Non-Detect	41.8	Maximum Non-Detect	3.733

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.904	Shapiro Wilk Test Statistic	0.91
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	7.045	Mean	1.179
SD	7.722	SD	1.353
95% DL/2 (t) UCL	10.56	95% H-Stat (DL/2) UCL	27.17
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	0.263
		SD in Log Scale	0.139
		Mean in Original Scale	1.313
		SD in Original Scale	0.188
		95% t UCL	1.398
		95% Percentile Bootstrap UCL	1.394
		95% BCA Bootstrap UCL	1.394

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	18.69	**Data appear Normal at 5% Significance Level**	
Theta Star	0.0735		
nu star	261.7		
A-D Test Statistic	0.431	**Nonparametric Statistics**	
5% A-D Critical Value	0.707	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.707	Mean	1.322
5% K-S Critical Value	0.311	SD	0.236
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0868
		95% KM (t) UCL	1.475
Assuming Gamma Distribution		95% KM (z) UCL	1.465
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.48
Minimum	1.02	95% KM (bootstrap t) UCL	1.487
Maximum	1.7	95% KM (BCA) UCL	1.487
Mean	1.412	95% KM (Percentile Bootstrap) UCL	1.471
Median	1.501	95% KM (Chebyshev) UCL	1.701

TABLE D-2h
ProUCL Output for Aggregate Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	0.192	97.5% KM (Chebyshev) UCL	1.865
k star	43.21	99% KM (Chebyshev) UCL	2.186
Theta star	0.0327		
Nu star	1296	**Potential UCLs to Use**	
AppChi2	1214	95% KM (t) UCL	1.475
95% Gamma Approximate UCL	1.508	95% KM (Percentile Bootstrap) UCL	1.471
95% Adjusted Gamma UCL	1.521		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Trichloroethene

General Statistics

Number of Valid Data	11	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	8
		Percent Non-Detects	72.73%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.004	Minimum Detected	-5.521
Maximum Detected	21	Maximum Detected	3.045
Mean of Detected	7.03	Mean of Detected	-1.647
SD of Detected	12.1	SD of Detected	4.341
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.012	Maximum Non-Detect	-4.423

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	81.82%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.753	Shapiro Wilk Test Statistic	0.973
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.919	Mean	-5.47
SD	6.329	SD	3.263
95% DL/2 (t) UCL	5.377	95% H-Stat (DL/2) UCL	3726
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-12.71
		SD in Log Scale	8.18
		Mean in Original Scale	1.917
		SD in Original Scale	6.329
		95% t UCL	5.376
		95% Percentile Bootstrap UCL	5.728
		95% BCA Bootstrap UCL	7.645

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Lognormal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.92
5% K-S Critical Value	N/A	SD	6.034
Data not Gamma Distributed at 5% Significance Level		SE of Mean	2.228
		95% KM (t) UCL	5.958
Assuming Gamma Distribution		95% KM (z) UCL	5.585
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	5.332
Minimum	N/A	95% KM (bootstrap t) UCL	526.5
Maximum	N/A	95% KM (BCA) UCL	N/A

TABLE D-2h
ProUCL Output for Aggregate Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	11.63
SD	N/A	97.5% KM (Chebyshev) UCL	15.83
k star	N/A	99% KM (Chebyshev) UCL	24.09
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	24.09
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Warning: Recommended UCL exceeds the maximum observation

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	14

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.5	Minimum of Log Data	2.251
Maximum	102	Maximum of Log Data	4.625
Mean	39.61	Mean of log Data	3.503
Median	27.5	SD of log Data	0.61
SD	25.95		
Coefficient of Variation	0.655		
Skewness	1.439		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.823	Shapiro Wilk Test Statistic	0.948
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	51.42	95% H-UCL	57.25
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	67.73
95% Adjusted-CLT UCL (Chen-1995)	53.3	97.5% Chebyshev (MVUE) UCL	79.96
95% Modified-t UCL (Johnson-1978)	51.83	99% Chebyshev (MVUE) UCL	104

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	2.442	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	16.22		
MLE of Mean	39.61		
MLE of Standard Deviation	25.35		
nu star	73.26		
Approximate Chi Square Value (.05)	54.55	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0324	95% CLT UCL	50.64
Adjusted Chi Square Value	52.57	95% Jackknife UCL	51.42
		95% Standard Bootstrap UCL	50.15
Anderson-Darling Test Statistic	0.638	95% Bootstrap-t UCL	56.84
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL	54.85
Kolmogorov-Smirnov Test Statistic	0.191	95% Percentile Bootstrap UCL	50.54
Kolmogorov-Smirnov 5% Critical Value	0.223	95% BCA Bootstrap UCL	53.52
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	68.82
		97.5% Chebyshev(Mean, Sd) UCL	81.46
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	106.3
95% Approximate Gamma UCL	53.2		
95% Adjusted Gamma UCL	55.21		

Potential UCL to Use	Use 95% Approximate Gamma UCL	53.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2h
ProUCL Output for Aggregate Soil- Area H
Scovill Industrial Landfill Site
Waterbury, Connecticut

Zinc

General Statistics

Number of Valid Observations	15	Number of Distinct Observations	15

Raw Statistics		**Log-transformed Statistics**	
Minimum	26.8	Minimum of Log Data	3.288
Maximum	11400	Maximum of Log Data	9.341
Mean	1253	Mean of log Data	5.627
Median	255	SD of log Data	1.647
SD	2944		
Coefficient of Variation	2.349		
Skewness	3.358		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.461	Shapiro Wilk Test Statistic	0.932
Shapiro Wilk Critical Value	0.881	Shapiro Wilk Critical Value	0.881
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2592	95% H-UCL	5967
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2832
95% Adjusted-CLT UCL (Chen-1995)	3208	97.5% Chebyshev (MVUE) UCL	3666
95% Modified-t UCL (Johnson-1978)	2702	99% Chebyshev (MVUE) UCL	5303

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.39	**Data appear Lognormal at 5% Significance Level**
Theta Star	3216	
MLE of Mean	1253	
MLE of Standard Deviation	2007	
nu star	11.69	
Approximate Chi Square Value (.05)	5.024	**Nonparametric Statistics**
Adjusted Level of Significance	0.0324	95% CLT UCL 2503
Adjusted Chi Square Value	4.497	95% Jackknife UCL 2592
		95% Standard Bootstrap UCL 2465
Anderson-Darling Test Statistic	1.434	95% Bootstrap-t UCL 8426
Anderson-Darling 5% Critical Value	0.808	95% Hall's Bootstrap UCL 8257
Kolmogorov-Smirnov Test Statistic	0.321	95% Percentile Bootstrap UCL 2622
Kolmogorov-Smirnov 5% Critical Value	0.236	95% BCA Bootstrap UCL 3467
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 4566
		97.5% Chebyshev(Mean, Sd) UCL 6000
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 8816
95% Approximate Gamma UCL	2916	
95% Adjusted Gamma UCL	3258	

Potential UCL to Use	Use 99% Chebyshev (Mean, Sd) UCL 8816

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_I-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	1400	Minimum of Log Data	7.244
Maximum	9570	Maximum of Log Data	9.166
Mean	5488	Mean of log Data	8.499
Median	5250	SD of log Data	0.534
SD	2399		
Coefficient of Variation	0.437		
Skewness	0.0254		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk Test Statistic	0.914
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6732	95% H-UCL	8052
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	9448
95% Adjusted-CLT UCL (Chen-1995)	6633	97.5% Chebyshev (MVUE) UCL	11117
95% Modified-t UCL (Johnson-1978)	6733	99% Chebyshev (MVUE) UCL	14397

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.543	**Data appear Normal at 5% Significance Level**
Theta Star	1549	
MLE of Mean	5488	
MLE of Standard Deviation	2916	
nu star	85.04	
Approximate Chi Square Value (.05)	64.78	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 6627
Adjusted Chi Square Value	62.09	95% Jackknife UCL 6732
		95% Standard Bootstrap UCL 6583
Anderson-Darling Test Statistic	0.299	95% Bootstrap-t UCL 6800
Anderson-Darling 5% Critical Value	0.733	95% Hall's Bootstrap UCL 6623
Kolmogorov-Smirnov Test Statistic	0.144	95% Percentile Bootstrap UCL 6571
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 6628
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 8507
		97.5% Chebyshev(Mean, Sd) UCL 9813
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12378
95% Approximate Gamma UCL	7204	
95% Adjusted Gamma UCL	7517	

Potential UCL to Use	Use 95% Student's-t UCL 6732

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.1	Minimum of Log Data	0.0953
Maximum	21.5	Maximum of Log Data	3.068
Mean	6.892	Mean of log Data	1.585
Median	5.6	SD of log Data	0.911
SD	5.866		
Coefficient of Variation	0.851		
Skewness	1.5		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.864	Shapiro Wilk Test Statistic	0.968
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	9.933	95% H-UCL	15.76
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15.66
95% Adjusted-CLT UCL (Chen-1995)	10.46	97.5% Chebyshev (MVUE) UCL	19.38
95% Modified-t UCL (Johnson-1978)	10.05	99% Chebyshev (MVUE) UCL	26.69

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.25	**Data appear Normal at 5% Significance Level**
Theta Star	5.512	
MLE of Mean	6.892	
MLE of Standard Deviation	6.163	
nu star	30.01	
Approximate Chi Square Value (.05)	18.5	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 9.677
Adjusted Chi Square Value	17.13	95% Jackknife UCL 9.933
		95% Standard Bootstrap UCL 9.532
Anderson-Darling Test Statistic	0.182	95% Bootstrap-t UCL 11.37
Anderson-Darling 5% Critical Value	0.745	95% Hall's Bootstrap UCL 15.37
Kolmogorov-Smirnov Test Statistic	0.125	95% Percentile Bootstrap UCL 9.633
Kolmogorov-Smirnov 5% Critical Value	0.249	95% BCA Bootstrap UCL 10.52
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 14.27
		97.5% Chebyshev(Mean, Sd) UCL 17.47
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 23.74
95% Approximate Gamma UCL	11.18	
95% Adjusted Gamma UCL	12.07	

Potential UCL to Use	Use 95% Student's-t UCL 9.933

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzene

General Statistics

Number of Valid Data	8	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	7
		Percent Non-Detects	87.50%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable Benzene was not processed!

Benzo(a)anthracene

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	0.013	Minimum of Log Data	-4.343
Maximum	58	Maximum of Log Data	4.06
Mean	5.487	Mean of log Data	-1.069
Median	0.33	SD of log Data	2.318
SD	16.58		
Coefficient of Variation	3.022		
Skewness	3.432		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.373	Shapiro Wilk Test Statistic	0.951
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14.08	95% H-UCL	263.9
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	11.79
95% Adjusted-CLT UCL (Chen-1995)	18.43	97.5% Chebyshev (MVUE) UCL	15.65
95% Modified-t UCL (Johnson-1978)	14.87	99% Chebyshev (MVUE) UCL	23.21

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.247	**Data appear Lognormal at 5% Significance Level**	
Theta Star	22.2		
MLE of Mean	5.487		
MLE of Standard Deviation	11.04		
nu star	5.931		
Approximate Chi Square Value (.05)	1.605	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	13.36
Adjusted Chi Square Value	1.287	95% Jackknife UCL	14.08
		95% Standard Bootstrap UCL	12.92
Anderson-Darling Test Statistic	1.382	95% Bootstrap-t UCL	260.7
Anderson-Darling 5% Critical Value	0.842	95% Hall's Bootstrap UCL	106.4
Kolmogorov-Smirnov Test Statistic	0.338	95% Percentile Bootstrap UCL	14.82
Kolmogorov-Smirnov 5% Critical Value	0.268	95% BCA Bootstrap UCL	19.59
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	26.35
		97.5% Chebyshev(Mean, Sd) UCL	35.38
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	53.11
95% Approximate Gamma UCL	20.28		
95% Adjusted Gamma UCL	25.28		

Potential UCL to Use	Use 99% Chebyshev (Mean, Sd) UCL 53.11

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	13	Number of Detected Data	11
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
		Percent Non-Detects	15.38%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	53	Maximum Detected	3.97
Mean of Detected	5.548	Mean of Detected	-0.908
SD of Detected	15.79	SD of Detected	2.386
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	0.44	Maximum Non-Detect	-0.821

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	6
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	53.85%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.398	Shapiro Wilk Test Statistic	0.974
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.718	Mean	-1.065
SD	14.55	SD	2.218
95% DL/2 (t) UCL	11.91	95% H-Stat (DL/2) UCL	118.9
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.241
		SD in Log Scale	2.326
		Mean in Original Scale	4.701
		SD in Original Scale	14.56
		95% t UCL	11.9
		95% Percentile Bootstrap UCL	12.68
		95% BCA Bootstrap UCL	16.65

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.256	**Data appear Lognormal at 5% Significance Level**	
Theta Star	21.71		
nu star	5.621		
A-D Test Statistic	1.07	**Nonparametric Statistics**	
5% A-D Critical Value	0.833	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.833	Mean	4.706
5% K-S Critical Value	0.278	SD	13.99
Data not Gamma Distributed at 5% Significance Level		SE of Mean	4.068
		95% KM (t) UCL	11.96
Assuming Gamma Distribution		95% KM (z) UCL	11.4
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	11.9
Minimum	1E-12	95% KM (bootstrap t) UCL	166.8
Maximum	53	95% KM (BCA) UCL	12.86
Mean	4.694	95% KM (Percentile Bootstrap) UCL	12.7
Median	0.2	95% KM (Chebyshev) UCL	22.44
SD	14.56	97.5% KM (Chebyshev) UCL	30.11
k star	0.144	99% KM (Chebyshev) UCL	45.18
Theta star	32.57		
Nu star	3.747	**Potential UCLs to Use**	
AppChi2	0.624	99% KM (Chebyshev) UCL	45.18
95% Gamma Approximate UCL	28.17		
95% Adjusted Gamma UCL	37.27		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	13	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	2
		Percent Non-Detects	15.38%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.031	Minimum Detected	-3.474
Maximum Detected	43	Maximum Detected	3.761
Mean of Detected	5.077	Mean of Detected	-0.501
SD of Detected	12.75	SD of Detected	2.163
Minimum Non-Detect	0.33	Minimum Non-Detect	-1.109
Maximum Non-Detect	0.44	Maximum Non-Detect	-0.821

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	6
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	53.85%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.452	Shapiro Wilk Test Statistic	0.966
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.325	Mean	-0.679
SD	11.78	SD	2.023
95% DL/2 (t) UCL	10.15	95% H-Stat (DL/2) UCL	66.89
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.775
		SD in Log Scale	2.085
		Mean in Original Scale	4.311
		SD in Original Scale	11.79
		95% t UCL	10.14
		95% Percentile Bootstrap UCL	10.5
		95% BCA Bootstrap UCL	14.28

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.294	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	17.27		
nu star	6.467		
A-D Test Statistic	0.855	**Nonparametric Statistics**	
5% A-D Critical Value	0.816	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.816	Mean	4.315
5% K-S Critical Value	0.275	SD	11.32
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	3.294
		95% KM (t) UCL	10.19
Assuming Gamma Distribution		95% KM (z) UCL	9.733
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	10.14
Minimum	1E-12	95% KM (bootstrap t) UCL	79.33
Maximum	43	95% KM (BCA) UCL	10.52
Mean	4.296	95% KM (Percentile Bootstrap) UCL	10.44
Median	0.25	95% KM (Chebyshev) UCL	18.67
SD	11.79	97.5% KM (Chebyshev) UCL	24.89
k star	0.15	99% KM (Chebyshev) UCL	37.09
Theta star	28.66		
Nu star	3.896	**Potential UCLs to Use**	
AppChi2	0.681	95% KM (Chebyshev) UCL	18.67
95% Gamma Approximate UCL	24.57		
95% Adjusted Gamma UCL	32.3		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(g,h,i)perylene

General Statistics

Number of Valid Data	13	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	6
		Percent Non-Detects	46.15%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.13	Minimum Detected	-2.04
Maximum Detected	35	Maximum Detected	3.555
Mean of Detected	5.481	Mean of Detected	-0.272
SD of Detected	13.02	SD of Detected	1.894
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.31%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.482	Shapiro Wilk Test Statistic	0.849
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.127	Mean	-0.808
SD	9.587	SD	1.584
95% DL/2 (t) UCL	7.866	95% H-Stat (DL/2) UCL	9.467
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.006
		SD in Log Scale	1.588
		Mean in Original Scale	3.027
		SD in Original Scale	9.613
		95% t UCL	7.779
		95% Percentile Bootstrap UCL	8.351
		95% BCA Bootstrap UCL	11.04

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.291	**Data appear Lognormal at 5% Significance Level**	
Theta Star	18.86		
nu star	4.069		
A-D Test Statistic	1.094	**Nonparametric Statistics**	
5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.777	Mean	3.047
5% K-S Critical Value	0.333	SD	9.231
Data not Gamma Distributed at 5% Significance Level		SE of Mean	2.765
		95% KM (t) UCL	7.976
Assuming Gamma Distribution		95% KM (z) UCL	7.596
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	7.797
Minimum	0.13	95% KM (bootstrap t) UCL	101.9
Maximum	35	95% KM (BCA) UCL	8.459
Mean	5.593	95% KM (Percentile Bootstrap) UCL	8.334
Median	4.631	95% KM (Chebyshev) UCL	15.1

SD	9.216	97.5% KM (Chebyshev) UCL	20.32
k star	0.5	99% KM (Chebyshev) UCL	30.56
Theta star	11.2		
Nu star	12.99	**Potential UCLs to Use**	
AppChi2	5.884	99% KM (Chebyshev) UCL	30.56
95% Gamma Approximate UCL	12.34		
95% Adjusted Gamma UCL	13.92		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	13	Number of Detected Data	8
Number of Distinct Detected Data	7	Number of Non-Detect Data	5
		Percent Non-Detects	38.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.038	Minimum Detected	-3.27
Maximum Detected	51	Maximum Detected	3.932
Mean of Detected	6.945	Mean of Detected	-0.593
SD of Detected	17.82	SD of Detected	2.28
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.31%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.453	Shapiro Wilk Test Statistic	0.929
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.522	Mean	-0.752
SD	13.98	SD	1.896
95% DL/2 (t) UCL	11.43	95% H-Stat (DL/2) UCL	34.26
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.228
		SD in Log Scale	1.979
		Mean in Original Scale	4.324
		SD in Original Scale	14.04
		95% t UCL	11.26
		95% Percentile Bootstrap UCL	12.06
		95% BCA Bootstrap UCL	16.13

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.256	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	27.14		
nu star	4.095		
A-D Test Statistic	0.982	**Nonparametric Statistics**	
5% A-D Critical Value	0.806	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.806	Mean	4.37
5% K-S Critical Value	0.318	SD	13.48
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	3.997
		95% KM (t) UCL	11.49
Assuming Gamma Distribution		95% KM (z) UCL	10.94
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	11.31
Minimum	1E-12	95% KM (bootstrap t) UCL	155.5
Maximum	51	95% KM (BCA) UCL	12.29
Mean	5.108	95% KM (Percentile Bootstrap) UCL	12.11
Median	0.2	95% KM (Chebyshev) UCL	21.79

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	13.93	97.5% KM (Chebyshev) UCL	29.33
k star	0.128	99% KM (Chebyshev) UCL	44.14
Theta star	39.82		
Nu star	3.335	**Potential UCLs to Use**	
AppChi2	0.478	95% KM (BCA) UCL	12.29
95% Gamma Approximate UCL	35.61		
95% Adjusted Gamma UCL	47.96		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	8	Number of Non-Detect Data	2
		Percent Non-Detects	16.67%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.25	Minimum Detected	-1.386
Maximum Detected	28	Maximum Detected	3.332
Mean of Detected	4.874	Mean of Detected	0.501
SD of Detected	8.591	SD of Detected	1.533
Minimum Non-Detect	0.0787	Minimum Non-Detect	-2.542
Maximum Non-Detect	0.0811	Maximum Non-Detect	-2.512

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	2
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	10
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	16.67%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.595	Shapiro Wilk Test Statistic	0.95
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	4.068	Mean	-0.119
SD	7.996	SD	2.005
95% DL/2 (t) UCL	8.214	95% H-Stat (DL/2) UCL	134.1
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	3.088	Mean in Log Scale	-0.113
SD	8.66	SD in Log Scale	1.994
95% MLE (t) UCL	7.577	Mean in Original Scale	4.069
95% MLE (Tiku) UCL	7.411	SD in Original Scale	7.996
		95% t UCL	8.214
		95% Percentile Bootstrap UCL	8.308
		95% BCA Bootstrap UCL	10.31

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.469	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	10.4		
nu star	9.372		
A-D Test Statistic	0.567	**Nonparametric Statistics**	
5% A-D Critical Value	0.771	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.771	Mean	4.103
5% K-S Critical Value	0.279	SD	7.637
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	2.324
		95% KM (t) UCL	8.277
Assuming Gamma Distribution		95% KM (z) UCL	7.926
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	8.239
Minimum	1E-12	95% KM (bootstrap t) UCL	26.87
Maximum	28	95% KM (BCA) UCL	8.363
Mean	4.062	95% KM (Percentile Bootstrap) UCL	8.345
Median	1.235	95% KM (Chebyshev) UCL	14.23
SD	7.999	97.5% KM (Chebyshev) UCL	18.62
k star	0.16	99% KM (Chebyshev) UCL	27.23
Theta star	25.41		
Nu star	3.836	**Potential UCLs to Use**	
AppChi2	0.658	95% KM (Chebyshev) UCL	14.23
95% Gamma Approximate UCL	23.68		
95% Adjusted Gamma UCL	31.85		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	12	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	4
		Percent Non-Detects	33.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.011	Minimum Detected	-4.51
Maximum Detected	17	Maximum Detected	2.833
Mean of Detected	2.268	Mean of Detected	-2.068
SD of Detected	5.958	SD of Detected	2.367
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.67%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.448	Shapiro Wilk Test Statistic	0.872
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.665	Mean	-1.845
SD	4.847	SD	2.014
95% DL/2 (t) UCL	4.178	95% H-Stat (DL/2) UCL	24.94
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.344
		SD in Log Scale	1.933
		Mean in Original Scale	1.531
		SD in Original Scale	4.876
		95% t UCL	4.059
		95% Percentile Bootstrap UCL	4.289
		95% BCA Bootstrap UCL	5.77

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.237	**Data appear Lognormal at 5% Significance Level**	
Theta Star	9.554		
nu star	3.799		
A-D Test Statistic	1.205	**Nonparametric Statistics**	
5% A-D Critical Value	0.818	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.818	Mean	1.537
5% K-S Critical Value	0.32	SD	4.667
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.441
		95% KM (t) UCL	4.124
Assuming Gamma Distribution		95% KM (z) UCL	3.907
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.065
Minimum	0.011	95% KM (bootstrap t) UCL	138.4
Maximum	17	95% KM (BCA) UCL	4.299
Mean	2.384	95% KM (Percentile Bootstrap) UCL	4.306
Median	0.475	95% KM (Chebyshev) UCL	7.817
SD	4.756	97.5% KM (Chebyshev) UCL	10.53
k star	0.317	99% KM (Chebyshev) UCL	15.87

Theta star	7.513
Nu star	7.616
AppChi2	2.515
95% Gamma Approximate UCL	7.221
95% Adjusted Gamma UCL	8.686

Potential UCLs to Use

99% KM (Chebyshev) UCL	15.87

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Chromium Total

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	4.3	Minimum of Log Data	1.459
Maximum	16.5	Maximum of Log Data	2.803
Mean	9.858	Mean of log Data	2.2
Median	8.7	SD of log Data	0.445
SD	4.216		
Coefficient of Variation	0.428		
Skewness	0.383		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.924	Shapiro Wilk Test Statistic	0.951
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	12.04	95% H-UCL	13.17
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	15.52
95% Adjusted-CLT UCL (Chen-1995)	12	97.5% Chebyshev (MVUE) UCL	17.95
95% Modified-t UCL (Johnson-1978)	12.07	99% Chebyshev (MVUE) UCL	22.74

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	4.438	**Data appear Normal at 5% Significance Level**
Theta Star	2.221	
MLE of Mean	9.858	
MLE of Standard Deviation	4.679	
nu star	106.5	
Approximate Chi Square Value (.05)	83.7	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 11.86
Adjusted Chi Square Value	80.62	95% Jackknife UCL 12.04
		95% Standard Bootstrap UCL 11.73
Anderson-Darling Test Statistic	0.298	95% Bootstrap-t UCL 12.29
Anderson-Darling 5% Critical Value	0.732	95% Hall's Bootstrap UCL 11.55
Kolmogorov-Smirnov Test Statistic	0.154	95% Percentile Bootstrap UCL 11.84
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL 11.96
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15.16
		97.5% Chebyshev(Mean, Sd) UCL 17.46
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 21.97
95% Approximate Gamma UCL	12.55	
95% Adjusted Gamma UCL	13.03	

Potential UCL to Use	Use 95% Student's-t UCL 12.04

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Chrysene

General Statistics

Number of Valid Data	13	Number of Detected Data	12
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	7.69%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.015	Minimum Detected	-4.2
Maximum Detected	69	Maximum Detected	4.234
Mean of Detected	6.588	Mean of Detected	-0.697
SD of Detected	19.7	SD of Detected	2.238
Minimum Non-Detect	0.44	Minimum Non-Detect	-0.821
Maximum Non-Detect	0.44	Maximum Non-Detect	-0.821

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.374	Shapiro Wilk Test Statistic	0.963
5% Shapiro Wilk Critical Value	0.859	5% Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	6.098	Mean	-0.76
SD	18.94	SD	2.155
95% DL/2 (t) UCL	15.46	95% H-Stat (DL/2) UCL	117.3
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.823
		SD in Log Scale	2.19
		Mean in Original Scale	6.089
		SD in Original Scale	18.95
		95% t UCL	15.46
		95% Percentile Bootstrap UCL	16.45
		95% BCA Bootstrap UCL	21.96
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.259	**Data appear Lognormal at 5% Significance Level**	
Theta Star	25.42		
nu star	6.219		
A-D Test Statistic	1.34	**Nonparametric Statistics**	
5% A-D Critical Value	0.836	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.836	Mean	6.091
5% K-S Critical Value	0.267	SD	18.2
Data not Gamma Distributed at 5% Significance Level		SE of Mean	5.273
		95% KM (t) UCL	15.49
Assuming Gamma Distribution		95% KM (z) UCL	14.77
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	15.46
Minimum	1E-12	95% KM (bootstrap t) UCL	215.7
Maximum	69	95% KM (BCA) UCL	16.38
Mean	6.081	95% KM (Percentile Bootstrap) UCL	16.46
Median	0.23	95% KM (Chebyshev) UCL	29.08
SD	18.95	97.5% KM (Chebyshev) UCL	39.02
k star	0.179	99% KM (Chebyshev) UCL	58.56
Theta star	34.04		
Nu star	4.645	**Potential UCLs to Use**	
AppChi2	0.992	99% KM (Chebyshev) UCL	58.56
95% Gamma Approximate UCL	28.48		
95% Adjusted Gamma UCL	36.34		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cobalt

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	11

Raw Statistics		**Log-transformed Statistics**	
Minimum	2.9	Minimum of Log Data	1.065
Maximum	11.2	Maximum of Log Data	2.416
Mean	5.402	Mean of log Data	1.612
Median	4.75	SD of log Data	0.391
SD	2.337		
Coefficient of Variation	0.433		
Skewness	1.445		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.868	Shapiro Wilk Test Statistic	0.953
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.613	95% H-UCL	6.87
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	8.067
95% Adjusted-CLT UCL (Chen-1995)	6.812	97.5% Chebyshev (MVUE) UCL	9.231
95% Modified-t UCL (Johnson-1978)	6.66	99% Chebyshev (MVUE) UCL	11.52

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	5.228	**Data appear Normal at 5% Significance Level**	
Theta Star	1.033		
MLE of Mean	5.402		
MLE of Standard Deviation	2.362		
nu star	125.5		
Approximate Chi Square Value (.05)	100.6	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	6.511
Adjusted Chi Square Value	97.21	95% Jackknife UCL	6.613
		95% Standard Bootstrap UCL	6.48
Anderson-Darling Test Statistic	0.354	95% Bootstrap-t UCL	7.189
Anderson-Darling 5% Critical Value	0.731	95% Hall's Bootstrap UCL	7.452
Kolmogorov-Smirnov Test Statistic	0.149	95% Percentile Bootstrap UCL	6.517
Kolmogorov-Smirnov 5% Critical Value	0.246	95% BCA Bootstrap UCL	6.742
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	8.342
		97.5% Chebyshev(Mean, Sd) UCL	9.615
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	12.11
95% Approximate Gamma UCL	6.737		
95% Adjusted Gamma UCL	6.972		

Potential UCL to Use		Use 95% Student's-t UCL	6.613

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	13	Number of Detected Data	8
Number of Distinct Detected Data	8	Number of Non-Detect Data	5
		Percent Non-Detects	38.46%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.015	Minimum Detected	-4.2
Maximum Detected	13	Maximum Detected	2.565
Mean of Detected	1.787	Mean of Detected	-1.701
SD of Detected	4.535	SD of Detected	2.108
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.31%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.453	Shapiro Wilk Test Statistic	0.927
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.257	Mean	-1.593
SD	3.547	SD	1.722
95% DL/2 (t) UCL	3.011	95% H-Stat (DL/2) UCL	7.144
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.075
		SD in Log Scale	1.694
		Mean in Original Scale	1.127
		SD in Original Scale	3.571
		95% t UCL	2.892
		95% Percentile Bootstrap UCL	3.093
		95% BCA Bootstrap UCL	4.114
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.272	**Data appear Lognormal at 5% Significance Level**	
Theta Star	6.566		
nu star	4.353		
A-D Test Statistic	1.016	**Nonparametric Statistics**	
5% A-D Critical Value	0.797	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.797	Mean	1.141
5% K-S Critical Value	0.317	SD	3.427
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.016
		95% KM (t) UCL	2.952
Assuming Gamma Distribution		95% KM (z) UCL	2.813
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.905
Minimum	0.015	95% KM (bootstrap t) UCL	30.9
Maximum	13	95% KM (BCA) UCL	3.13
Mean	1.875	95% KM (Percentile Bootstrap) UCL	3.108
Median	0.56	95% KM (Chebyshev) UCL	5.571

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	3.466	97.5% KM (Chebyshev) UCL	7.488
k star	0.404	99% KM (Chebyshev) UCL	11.25
Theta star	4.644		
Nu star	10.5	**Potential UCLs to Use**	
AppChi2	4.254	99% KM (Chebyshev) UCL	11.25
95% Gamma Approximate UCL	4.625		
95% Adjusted Gamma UCL	5.311		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dibenzofuran

General Statistics

Number of Valid Data	13	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	6
		Percent Non-Detects	46.15%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.008	Minimum Detected	-4.828
Maximum Detected	15	Maximum Detected	2.708
Mean of Detected	2.219	Mean of Detected	-2.782
SD of Detected	5.638	SD of Detected	2.777
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	92.31%

Warning: There are only 7 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.471	Shapiro Wilk Test Statistic	0.756
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.369	Mean	-2.166
SD	4.113	SD	2.165
95% DL/2 (t) UCL	3.402	95% H-Stat (DL/2) UCL	30.25
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.289
		SD in Log Scale	2.046
		Mean in Original Scale	1.205
		SD in Original Scale	4.147
		95% t UCL	3.254
		95% Percentile Bootstrap UCL	3.477
		95% BCA Bootstrap UCL	4.662

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.212	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	10.45		
nu star	2.972		
A-D Test Statistic	1.26	**Nonparametric Statistics**	
5% A-D Critical Value	0.819	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.819	Mean	1.205
5% K-S Critical Value	0.342	SD	3.984
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.194
		95% KM (t) UCL	3.333
Assuming Gamma Distribution		95% KM (z) UCL	3.168
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	3.255
Minimum	0.008	95% KM (bootstrap t) UCL	489.4
Maximum	15	95% KM (BCA) UCL	3.51
Mean	2.398	95% KM (Percentile Bootstrap) UCL	3.477
Median	2.484	95% KM (Chebyshev) UCL	6.408
SD	3.992	97.5% KM (Chebyshev) UCL	8.659
k star	0.319	99% KM (Chebyshev) UCL	13.08

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

Theta star	7.507		
Nu star	8.305	**Potential UCLs to Use**	
AppChi2	2.913	99% KM (Chebyshev) UCL	13.08
95% Gamma Approximate UCL	6.837		
95% Adjusted Gamma UCL	8.04		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	13	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	10
		Percent Non-Detects	76.92%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.081	Minimum Detected	-2.513
Maximum Detected	0.31	Maximum Detected	-1.171
Mean of Detected	0.17	Mean of Detected	-1.935
SD of Detected	0.123	SD of Detected	0.69
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	81	Maximum Non-Detect	4.394

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.873	Shapiro Wilk Test Statistic	0.946
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.467	Mean	-1.033
SD	11.14	SD	1.663
95% DL/2 (t) UCL	8.972	95% H-Stat (DL/2) UCL	10.06
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.044
		SD in Log Scale	0.323
		Mean in Original Scale	0.137
		SD in Original Scale	0.0568
		95% t UCL	0.165
		95% Percentile Bootstrap UCL	0.165
		95% BCA Bootstrap UCL	0.177

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.153
5% K-S Critical Value	N/A	SD	0.0923
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.057
		95% KM (t) UCL	0.254
Assuming Gamma Distribution		95% KM (z) UCL	0.247
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.261
Minimum	N/A	95% KM (bootstrap t) UCL	0.516
Maximum	N/A	95% KM (BCA) UCL	0.31

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

Mean	N/A	95% KM (Percentile Bootstrap) UCL	0.31
Median	N/A	95% KM (Chebyshev) UCL	0.401
SD	N/A	97.5% KM (Chebyshev) UCL	0.509
k star	N/A	99% KM (Chebyshev) UCL	0.72
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	0.254
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	0.31
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	12	Number of Detected Data	9
Number of Distinct Detected Data	9	Number of Non-Detect Data	3
		Percent Non-Detects	25.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.031	Minimum Detected	-3.474
Maximum Detected	41	Maximum Detected	3.714
Mean of Detected	4.947	Mean of Detected	-0.897
SD of Detected	13.53	SD of Detected	2.162
Minimum Non-Detect	0.19	Minimum Non-Detect	-1.661
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	11
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.67%

Warning: There are only 9 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.416	Shapiro Wilk Test Statistic	0.912
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.848	Mean	-0.991
SD	11.71	SD	1.948
95% DL/2 (t) UCL	9.919	95% H-Stat (DL/2) UCL	42.66
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.246
		SD in Log Scale	1.967
		Mean in Original Scale	3.739
		SD in Original Scale	11.74
		95% t UCL	9.826
		95% Percentile Bootstrap UCL	10.46
		95% BCA Bootstrap UCL	13.89

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.26	**Data appear Lognormal at 5% Significance Level**	
Theta Star	19		
nu star	4.687		
A-D Test Statistic	1.226	**Nonparametric Statistics**	
5% A-D Critical Value	0.815	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.815	Mean	3.757
5% K-S Critical Value	0.303	SD	11.24
Data not Gamma Distributed at 5% Significance Level		SE of Mean	3.44
		95% KM (t) UCL	9.935
Assuming Gamma Distribution		95% KM (z) UCL	9.416
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	9.841
Minimum	1E-12	95% KM (bootstrap t) UCL	129.4
Maximum	41	95% KM (BCA) UCL	10.58
Mean	3.831	95% KM (Percentile Bootstrap) UCL	10.43
Median	0.26	95% KM (Chebyshev) UCL	18.75

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

SD	11.72	97.5% KM (Chebyshev) UCL	25.24
k star	0.146	99% KM (Chebyshev) UCL	37.99
Theta star	26.28		
Nu star	3.499	**Potential UCLs to Use**	
AppChi2	0.534	99% KM (Chebyshev) UCL	37.99
95% Gamma Approximate UCL	25.09		
95% Adjusted Gamma UCL	34.27		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Iron

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	2230	Minimum of Log Data	7.71
Maximum	15400	Maximum of Log Data	9.642
Mean	9602	Mean of log Data	9.056
Median	10120	SD of log Data	0.568
SD	3977		
Coefficient of Variation	0.414		
Skewness	-0.47		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.969	Shapiro Wilk Test Statistic	0.846
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	11907	95% H-UCL	15606
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	17791
95% Adjusted-CLT UCL (Chen-1995)	11471	97.5% Chebyshev (MVUE) UCL	21213
95% Modified-t UCL (Johnson-1978)	11876	99% Chebyshev (MVUE) UCL	27933

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	3.243	**Data appear Normal at 5% Significance Level**
Theta Star	2961	
MLE of Mean	9602	
MLE of Standard Deviation	5332	
nu star	64.86	
Approximate Chi Square Value (.05)	47.33	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 11671
Adjusted Chi Square Value	44.74	95% Jackknife UCL 11907
		95% Standard Bootstrap UCL 11535
Anderson-Darling Test Statistic	0.452	95% Bootstrap-t UCL 11840
Anderson-Darling 5% Critical Value	0.729	95% Hall's Bootstrap UCL 11532
Kolmogorov-Smirnov Test Statistic	0.204	95% Percentile Bootstrap UCL 11487
Kolmogorov-Smirnov 5% Critical Value	0.268	95% BCA Bootstrap UCL 11421
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 15084
		97.5% Chebyshev(Mean, Sd) UCL 17456
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 22115
95% Approximate Gamma UCL	13158	
95% Adjusted Gamma UCL	13921	

Potential UCL to Use	Use 95% Student's-t UCL 11907

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.9	Minimum of Log Data	1.775
Maximum	1020	Maximum of Log Data	6.928
Mean	155.9	Mean of log Data	4.074
Median	57.76	SD of log Data	1.472
SD	280.9		
Coefficient of Variation	1.802		
Skewness	3.107		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.539	Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	301.5	95% H-UCL	954.4
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	450.4
95% Adjusted-CLT UCL (Chen-1995)	366.9	97.5% Chebyshev (MVUE) UCL	580.9
95% Modified-t UCL (Johnson-1978)	313.6	99% Chebyshev (MVUE) UCL	837.3

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.527	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	295.5	
MLE of Mean	155.9	
MLE of Standard Deviation	214.6	
nu star	12.66	
Approximate Chi Square Value (.05)	5.664	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 289.2
Adjusted Chi Square Value	4.968	95% Jackknife UCL 301.5
		95% Standard Bootstrap UCL 281.4
Anderson-Darling Test Statistic	0.556	95% Bootstrap-t UCL 706.5
Anderson-Darling 5% Critical Value	0.775	95% Hall's Bootstrap UCL 797.3
Kolmogorov-Smirnov Test Statistic	0.181	95% Percentile Bootstrap UCL 303
Kolmogorov-Smirnov 5% Critical Value	0.257	95% BCA Bootstrap UCL 378.4
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 509.3
		97.5% Chebyshev(Mean, Sd) UCL 662.3
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 962.7
95% Approximate Gamma UCL	348.3	
95% Adjusted Gamma UCL	397.1	

Potential UCL to Use		Use 95% Approximate Gamma UCL	348.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	10	Number of Distinct Observations	10

Raw Statistics		**Log-transformed Statistics**	
Minimum	9.6	Minimum of Log Data	2.262
Maximum	336	Maximum of Log Data	5.817
Mean	138	Mean of log Data	4.632
Median	126.5	SD of log Data	0.976
SD	91.93		
Coefficient of Variation	0.666		
Skewness	0.932		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.943	Shapiro Wilk Test Statistic	0.857
Shapiro Wilk Critical Value	0.842	Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	191.3	95% H-UCL	446.5
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	374.1
95% Adjusted-CLT UCL (Chen-1995)	195	97.5% Chebyshev (MVUE) UCL	468.8
95% Modified-t UCL (Johnson-1978)	192.7	99% Chebyshev (MVUE) UCL	654.8

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	1.358	**Data appear Normal at 5% Significance Level**
Theta Star	101.6	
MLE of Mean	138	
MLE of Standard Deviation	118.4	
nu star	27.17	
Approximate Chi Square Value (.05)	16.28	**Nonparametric Statistics**
Adjusted Level of Significance	0.0267	95% CLT UCL 185.8
Adjusted Chi Square Value	14.83	95% Jackknife UCL 191.3
		95% Standard Bootstrap UCL 184.4
Anderson-Darling Test Statistic	0.295	95% Bootstrap-t UCL 202.1
Anderson-Darling 5% Critical Value	0.737	95% Hall's Bootstrap UCL 217
Kolmogorov-Smirnov Test Statistic	0.156	95% Percentile Bootstrap UCL 184.6
Kolmogorov-Smirnov 5% Critical Value	0.27	95% BCA Bootstrap UCL 190.9
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 264.7
		97.5% Chebyshev(Mean, Sd) UCL 319.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 427.3
95% Approximate Gamma UCL	230.3	
95% Adjusted Gamma UCL	252.7	

Potential UCL to Use	Use 95% Student's-t UCL 191.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	12	Number of Detected Data	8
Number of Distinct Detected Data	6	Number of Non-Detect Data	4
		Percent Non-Detects	33.33%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.12	Minimum Detected	-2.12
Maximum Detected	1.2	Maximum Detected	0.182
Mean of Detected	0.355	Mean of Detected	-1.38
SD of Detected	0.372	SD of Detected	0.815
Minimum Non-Detect	0.0539	Minimum Non-Detect	-2.921
Maximum Non-Detect	0.101	Maximum Non-Detect	-2.29

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	4
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	8
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	33.33%

Warning: There are only 8 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.697	Shapiro Wilk Test Statistic	0.866
5% Shapiro Wilk Critical Value	0.818	5% Shapiro Wilk Critical Value	0.818
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.249	Mean	-2.024
SD	0.335	SD	1.165
95% DL/2 (t) UCL	0.423	95% H-Stat (DL/2) UCL	0.807
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.169	Mean in Log Scale	-2.059
SD	0.41	SD in Log Scale	1.196
95% MLE (t) UCL	0.382	Mean in Original Scale	0.248
95% MLE (Tiku) UCL	0.396	SD in Original Scale	0.337
		95% t UCL	0.422
		95% Percentile Bootstrap UCL	0.415
		95% BCA Bootstrap UCL	0.493

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.083	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.328		
nu star	17.33		
A-D Test Statistic	0.702	**Nonparametric Statistics**	
5% A-D Critical Value	0.728	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.728	Mean	0.277
5% K-S Critical Value	0.299	SD	0.305
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0941
		95% KM (t) UCL	0.446
Assuming Gamma Distribution		95% KM (z) UCL	0.432
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.442
Minimum	0.0856	95% KM (bootstrap t) UCL	1.014
Maximum	1.2	95% KM (BCA) UCL	0.453
Mean	0.265	95% KM (Percentile Bootstrap) UCL	0.443
Median	0.14	95% KM (Chebyshev) UCL	0.687
SD	0.325	97.5% KM (Chebyshev) UCL	0.865
k star	1.073	99% KM (Chebyshev) UCL	1.213

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

Theta star	0.247		
Nu star	25.75	**Potential UCLs to Use**	
AppChi2	15.18	95% KM (Percentile Bootstrap) UCL	0.443
95% Gamma Approximate UCL	0.45		
95% Adjusted Gamma UCL	0.489		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Naphthalene

General Statistics

Number of Valid Data	16	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	13
		Percent Non-Detects	81.25%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.01	Minimum Detected	-4.605
Maximum Detected	24	Maximum Detected	3.178
Mean of Detected	8.007	Mean of Detected	-1.979
SD of Detected	13.85	SD of Detected	4.466
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	2.8	Maximum Non-Detect	1.03

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	15
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	93.75%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.75	Shapiro Wilk Test Statistic	0.759
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.743	Mean	-2.94
SD	5.952	SD	3.059
95% DL/2 (t) UCL	4.352	95% H-Stat (DL/2) UCL	994.6
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-9.324
		SD in Log Scale	4.236
		Mean in Original Scale	1.501
		SD in Original Scale	6
		95% t UCL	4.131
		95% Percentile Bootstrap UCL	4.501
		95% BCA Bootstrap UCL	6.001

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.51
5% K-S Critical Value	N/A	SD	5.807
Data not Gamma Distributed at 5% Significance Level		SE of Mean	1.778
		95% KM (t) UCL	4.627
Assuming Gamma Distribution		95% KM (z) UCL	4.434
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.137
Minimum	N/A	95% KM (bootstrap t) UCL	17194
Maximum	N/A	95% KM (BCA) UCL	24

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

Mean	N/A	95% KM (Percentile Bootstrap) UCL	24
Median	N/A	95% KM (Chebyshev) UCL	9.26
SD	N/A	97.5% KM (Chebyshev) UCL	12.61
k star	N/A	99% KM (Chebyshev) UCL	19.2
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	99% KM (Chebyshev) UCL	19.2
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Silver

General Statistics

Number of Valid Data	12	Number of Detected Data	11
Number of Distinct Detected Data	11	Number of Non-Detect Data	1
		Percent Non-Detects	8.33%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.17	Minimum Detected	-1.772
Maximum Detected	92.5	Maximum Detected	4.527
Mean of Detected	9.364	Mean of Detected	-0.00134
SD of Detected	27.59	SD of Detected	1.807
Minimum Non-Detect	0.216	Minimum Non-Detect	-1.535
Maximum Non-Detect	0.216	Maximum Non-Detect	-1.535

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.376	Shapiro Wilk Test Statistic	0.84
5% Shapiro Wilk Critical Value	0.85	5% Shapiro Wilk Critical Value	0.85
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	8.592	Mean	-0.187
SD	26.44	SD	1.839
95% DL/2 (t) UCL	22.3	95% H-Stat (DL/2) UCL	58.04
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	5.116	Mean in Log Scale	-0.249
SD	28.36	SD in Log Scale	1.925
95% MLE (t) UCL	19.82	Mean in Original Scale	8.588
95% MLE (Tiku) UCL	19.14	SD in Original Scale	26.45
		95% t UCL	22.3
		95% Percentile Bootstrap UCL	23.75
		95% BCA Bootstrap UCL	31.46

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.284	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	32.99	
nu star	6.244	
A-D Test Statistic	1.824	**Nonparametric Statistics**
5% A-D Critical Value	0.819	Kaplan-Meier (KM) Method
K-S Test Statistic	0.819	Mean 8.598
5% K-S Critical Value	0.276	SD 25.32
Data not Gamma Distributed at 5% Significance Level		SE of Mean 7.665
		95% KM (t) UCL 22.36
Assuming Gamma Distribution		95% KM (z) UCL 21.21
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 22.3
Minimum	1E-12	95% KM (bootstrap t) UCL 311
Maximum	92.5	95% KM (BCA) UCL 23.88
Mean	8.583	95% KM (Percentile Bootstrap) UCL 23.71
Median	0.555	95% KM (Chebyshev) UCL 42.01
SD	26.45	97.5% KM (Chebyshev) UCL 56.47
k star	0.183	99% KM (Chebyshev) UCL 84.87
Theta star	46.99	
Nu star	4.384	**Potential UCLs to Use**
AppChi2	0.879	99% KM (Chebyshev) UCL 84.87
95% Gamma Approximate UCL	42.81	
95% Adjusted Gamma UCL	56.2	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Thallium

General Statistics

Number of Valid Data	12	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	8
		Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.95	Minimum Detected	-0.0513
Maximum Detected	1.5	Maximum Detected	0.405
Mean of Detected	1.188	Mean of Detected	0.154
SD of Detected	0.259	SD of Detected	0.217
Minimum Non-Detect	0.61	Minimum Non-Detect	-0.494
Maximum Non-Detect	26.3	Maximum Non-Detect	3.27

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	12
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.909	Shapiro Wilk Test Statistic	0.909
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.904	Mean	0.151
SD	4.756	SD	1.289
95% DL/2 (t) UCL	5.369	95% H-Stat (DL/2) UCL	10.26
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.118
		SD in Log Scale	0.25
		Mean in Original Scale	0.916
		SD in Original Scale	0.253
		95% t UCL	1.047
		95% Percentile Bootstrap UCL	1.039
		95% BCA Bootstrap UCL	1.068

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	7.264	**Data appear Normal at 5% Significance Level**	
Theta Star	0.163		
nu star	58.11		
A-D Test Statistic	0.358	**Nonparametric Statistics**	
5% A-D Critical Value	0.657	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.657	Mean	1.062
5% K-S Critical Value	0.394	SD	0.192
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0758
		95% KM (t) UCL	1.198
Assuming Gamma Distribution		95% KM (z) UCL	1.187
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.181
Minimum	1E-12	95% KM (bootstrap t) UCL	1.194
Maximum	1.5	95% KM (BCA) UCL	N/A
Mean	0.396	95% KM (Percentile Bootstrap) UCL	1.34
Median	1E-12	95% KM (Chebyshev) UCL	1.392
SD	0.6	97.5% KM (Chebyshev) UCL	1.535
k star	0.0932	99% KM (Chebyshev) UCL	1.816

TABLE D-2i
ProUCL Output for Aggregate Soil- Area I
Scovill Industrial Landfill Site
Waterbury, Connecticut

Theta star	4.248		
Nu star	2.236	**Potential UCLs to Use**	
AppChi2	0.188	95% KM (t) UCL	1.198
95% Gamma Approximate UCL	4.72	95% KM (Percentile Bootstrap) UCL	1.34
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	10.8	Minimum of Log Data	2.38
Maximum	157	Maximum of Log Data	5.056
Mean	31.84	Mean of log Data	3.126
Median	19	SD of log Data	0.707
SD	40.22		
Coefficient of Variation	1.263		
Skewness	3.23		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.501	Shapiro Wilk Test Statistic	0.804
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	52.7	95% H-UCL	49.04
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	55
95% Adjusted-CLT UCL (Chen-1995)	62.51	97.5% Chebyshev (MVUE) UCL	66.45
95% Modified-t UCL (Johnson-1978)	54.5	99% Chebyshev (MVUE) UCL	88.94

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	1.286	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	24.76		
MLE of Mean	31.84		
MLE of Standard Deviation	28.08		
nu star	30.87		
Approximate Chi Square Value (.05)	19.18	**Nonparametric Statistics**	
Adjusted Level of Significance	0.029	95% CLT UCL	50.94
Adjusted Chi Square Value	17.78	95% Jackknife UCL	52.7
		95% Standard Bootstrap UCL	50.22
Anderson-Darling Test Statistic	1.462	95% Bootstrap-t UCL	138.5
Anderson-Darling 5% Critical Value	0.744	95% Hall's Bootstrap UCL	132.9
Kolmogorov-Smirnov Test Statistic	0.313	95% Percentile Bootstrap UCL	53.43
Kolmogorov-Smirnov 5% Critical Value	0.249	95% BCA Bootstrap UCL	66.85
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	82.46
		97.5% Chebyshev(Mean, Sd) UCL	104.4
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	147.4
95% Approximate Gamma UCL	51.26		
95% Adjusted Gamma UCL	55.28		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 82.46

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics

Number of Valid Observations	12	Number of Distinct Observations	12

Raw Statistics		**Log-transformed Statistics**	
Minimum	32.6	Minimum of Log Data	3.484
Maximum	3240	Maximum of Log Data	8.083
Mean	565.2	Mean of log Data	5.339
Median	217	SD of log Data	1.498
SD	930.2		
Coefficient of Variation	1.646		
Skewness	2.591		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.616	Shapiro Wilk Test Statistic	0.931
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1047	95% H-UCL	3708
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1666
95% Adjusted-CLT UCL (Chen-1995)	1221	97.5% Chebyshev (MVUE) UCL	2151
95% Modified-t UCL (Johnson-1978)	1081	99% Chebyshev (MVUE) UCL	3105

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.518	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1091	
MLE of Mean	565.2	
MLE of Standard Deviation	785.1	
nu star	12.44	
Approximate Chi Square Value (.05)	5.515	**Nonparametric Statistics**
Adjusted Level of Significance	0.029	95% CLT UCL 1007
Adjusted Chi Square Value	4.83	95% Jackknife UCL 1047
		95% Standard Bootstrap UCL 989.5
Anderson-Darling Test Statistic	0.574	95% Bootstrap-t UCL 2550
Anderson-Darling 5% Critical Value	0.776	95% Hall's Bootstrap UCL 3186
Kolmogorov-Smirnov Test Statistic	0.208	95% Percentile Bootstrap UCL 1013
Kolmogorov-Smirnov 5% Critical Value	0.257	95% BCA Bootstrap UCL 1197
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 1736
		97.5% Chebyshev(Mean, Sd) UCL 2242
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 3237
95% Approximate Gamma UCL	1274	
95% Adjusted Gamma UCL	1455	

Potential UCL to Use	Use 95% Approximate Gamma UCL 1274

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2j
ProUCL Output for Aggregate Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	J:\Projects\Nobis RAC Region 1\Scovill LF\HHRA\Data\ProUCL_2011\Aggregate_J-ProUCL Input.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)

General Statistics

Number of Valid Observations	3	Number of Distinct Observations	3

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

Aluminum

General Statistics

Number of Valid Observations	34	Number of Distinct Observations	33

Raw Statistics		**Log-transformed Statistics**	
Minimum	4080	Minimum of Log Data	8.314
Maximum	15500	Maximum of Log Data	9.649
Mean	8226	Mean of log Data	8.968
Median	7735	SD of log Data	0.311
SD	2597		
Coefficient of Variation	0.316		
Skewness	0.824		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.955	Shapiro Wilk Test Statistic	0.99
Shapiro Wilk Critical Value	0.933	Shapiro Wilk Critical Value	0.933
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	8980	95% H-UCL	9086
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	10176
95% Adjusted-CLT UCL (Chen-1995)	9026	97.5% Chebyshev (MVUE) UCL	11019
95% Modified-t UCL (Johnson-1978)	8990	99% Chebyshev (MVUE) UCL	12676

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	9.898	**Data appear Normal at 5% Significance Level**
Theta Star	831.1	
MLE of Mean	8226	
MLE of Standard Deviation	2615	
nu star	673.1	
Approximate Chi Square Value (.05)	613.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.0422	95% CLT UCL 8959
Adjusted Chi Square Value	611.1	95% Jackknife UCL 8980
		95% Standard Bootstrap UCL 8941
Anderson-Darling Test Statistic	0.126	95% Bootstrap-t UCL 9048
Anderson-Darling 5% Critical Value	0.748	95% Hall's Bootstrap UCL 9069
Kolmogorov-Smirnov Test Statistic	0.0628	95% Percentile Bootstrap UCL 8939
Kolmogorov-Smirnov 5% Critical Value	0.151	95% BCA Bootstrap UCL 9008
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 10167
		97.5% Chebyshev(Mean, Sd) UCL 11007
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 12657
95% Approximate Gamma UCL	9019	
95% Adjusted Gamma UCL	9060	

Potential UCL to Use		
		Use 95% Student's-t UCL 8980

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Antimony

General Statistics

Number of Valid Data	26	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	23
		Percent Non-Detects	88.46%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	1.27	Minimum Detected	0.239
Maximum Detected	3.6	Maximum Detected	1.281
Mean of Detected	2.123	Mean of Detected	0.642
SD of Detected	1.284	SD of Detected	0.56
Minimum Non-Detect	0.52	Minimum Non-Detect	-0.654
Maximum Non-Detect	21.8	Maximum Non-Detect	3.082

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.823	Shapiro Wilk Test Statistic	0.866
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.943	Mean	-0.139
SD	3.044	SD	1.134
95% DL/2 (t) UCL	2.963	95% H-Stat (DL/2) UCL	3.041
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-1.386
		SD in Log Scale	0.769
		Mean in Original Scale	0.416
		SD in Original Scale	0.726
		95% t UCL	0.659
		95% Percentile Bootstrap UCL	0.669
		95% BCA Bootstrap UCL	0.795
Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.387
5% K-S Critical Value	N/A	SD	0.485
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.127
		95% KM (t) UCL	1.604
Assuming Gamma Distribution		95% KM (z) UCL	1.596
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.582
Minimum	N/A	95% KM (bootstrap t) UCL	2.18
Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	1.94
SD	N/A	97.5% KM (Chebyshev) UCL	2.179
k star	N/A	99% KM (Chebyshev) UCL	2.649
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	

TABLE D-2j
ProUCL Output for Aggregate Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

AppChi2	N/A	95% KM (t) UCL	1.604
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	N/A
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Aroclor-1254 (PCB-1254)

General Statistics

Number of Valid Data	49	Number of Detected Data	21
Number of Distinct Detected Data	20	Number of Non-Detect Data	28
		Percent Non-Detects	57.14%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	19	Maximum Detected	2.944
Mean of Detected	1.312	Mean of Detected	-1.351
SD of Detected	4.109	SD of Detected	1.525
Minimum Non-Detect	0.0041	Minimum Non-Detect	-5.497
Maximum Non-Detect	0.19	Maximum Non-Detect	-1.661

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	38
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	77.55%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.319	Shapiro Wilk Test Statistic	0.933
5% Shapiro Wilk Critical Value	0.908	5% Shapiro Wilk Critical Value	0.908
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.575	Mean	-2.863
SD	2.73	SD	1.728
95% DL/2 (t) UCL	1.229	95% H-Stat (DL/2) UCL	0.57
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-3.603
		SD in Log Scale	2.271
		Mean in Original Scale	0.566
		SD in Original Scale	2.732
		95% t UCL	1.22
		95% Percentile Bootstrap UCL	1.331
		95% BCA Bootstrap UCL	1.777

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.379	**Data appear Lognormal at 5% Significance Level**	
Theta Star	3.463		
nu star	15.91		
A-D Test Statistic	2.427	**Nonparametric Statistics**	
5% A-D Critical Value	0.825	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.825	Mean	0.575
5% K-S Critical Value	0.203	SD	2.702
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.395
		95% KM (t) UCL	1.239
Assuming Gamma Distribution		95% KM (z) UCL	1.226
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.219
Minimum	0.022	95% KM (bootstrap t) UCL	6.979
Maximum	19	95% KM (BCA) UCL	1.389
Mean	1.316	95% KM (Percentile Bootstrap) UCL	1.329
Median	1.212	95% KM (Chebyshev) UCL	2.299
SD	2.654	97.5% KM (Chebyshev) UCL	3.045
k star	0.807	99% KM (Chebyshev) UCL	4.51
Theta star	1.63		
Nu star	79.11	**Potential UCLs to Use**	
AppChi2	59.62	95% KM (Chebyshev) UCL	2.299
95% Gamma Approximate UCL	1.746		
95% Adjusted Gamma UCL	1.762		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Aroclor-1260 (PCB-1260)

General Statistics

Number of Valid Data	49	Number of Detected Data	20
Number of Distinct Detected Data	20	Number of Non-Detect Data	29
		Percent Non-Detects	59.18%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.026	Minimum Detected	-3.65
Maximum Detected	1.8	Maximum Detected	0.588
Mean of Detected	0.378	Mean of Detected	-1.808
SD of Detected	0.535	SD of Detected	1.329
Minimum Non-Detect	0.0041	Minimum Non-Detect	-5.497
Maximum Non-Detect	1.8	Maximum Non-Detect	0.588

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	48
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	97.96%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.667	Shapiro Wilk Test Statistic	0.943
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.187	Mean	-2.96
SD	0.394	SD	1.462
95% DL/2 (t) UCL	0.281	95% H-Stat (DL/2) UCL	0.277
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-3.266
		SD in Log Scale	1.57
		Mean in Original Scale	0.164
		SD in Original Scale	0.382
		95% t UCL	0.256
		95% Percentile Bootstrap UCL	0.25
		95% BCA Bootstrap UCL	0.294

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.645	**Data Follow Appr. Gamma Distribution at 5% Significance Level**	
Theta Star	0.587		
nu star	25.8		
A-D Test Statistic	0.863	**Nonparametric Statistics**	
5% A-D Critical Value	0.782	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.782	Mean	0.174
5% K-S Critical Value	0.202	SD	0.377
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean	0.0556
		95% KM (t) UCL	0.267
Assuming Gamma Distribution		95% KM (z) UCL	0.265
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.265
Minimum	0.026	95% KM (bootstrap t) UCL	0.317
Maximum	1.8	95% KM (BCA) UCL	0.275
Mean	0.379	95% KM (Percentile Bootstrap) UCL	0.268
Median	0.378	95% KM (Chebyshev) UCL	0.416
SD	0.337	97.5% KM (Chebyshev) UCL	0.521
k star	1.525	99% KM (Chebyshev) UCL	0.727
Theta star	0.249		
Nu star	149.4	**Potential UCLs to Use**	
AppChi2	122.2	95% KM (t) UCL	0.267
95% Gamma Approximate UCL	0.464		
95% Adjusted Gamma UCL	0.467		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Arsenic

General Statistics

Number of Valid Data	34	Number of Detected Data	30
Number of Distinct Detected Data	25	Number of Non-Detect Data	4
		Percent Non-Detects	11.76%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.9	Minimum Detected	-0.105
Maximum Detected	16.7	Maximum Detected	2.815
Mean of Detected	3.985	Mean of Detected	1.157
SD of Detected	3.227	SD of Detected	0.654
Minimum Non-Detect	0.96	Minimum Non-Detect	-0.0408
Maximum Non-Detect	10.4	Maximum Non-Detect	2.342

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	1
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	97.06%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.748	Shapiro Wilk Test Statistic	0.982
5% Shapiro Wilk Critical Value	0.927	5% Shapiro Wilk Critical Value	0.927
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.72	Mean	1.02
SD	3.191	SD	0.796
95% DL/2 (t) UCL	4.646	95% H-Stat (DL/2) UCL	5.177
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	1.039
		SD in Log Scale	0.718
		Mean in Original Scale	3.674
		SD in Original Scale	3.16
		95% t UCL	4.591
		95% Percentile Bootstrap UCL	4.596
		95% BCA Bootstrap UCL	4.894

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	2.159	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.846		
nu star	129.5		
A-D Test Statistic	0.625	**Nonparametric Statistics**	
5% A-D Critical Value	0.756	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.756	Mean	3.695
5% K-S Critical Value	0.162	SD	3.128
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.55
		95% KM (t) UCL	4.625
Assuming Gamma Distribution		95% KM (z) UCL	4.599
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	4.607
Minimum	1E-12	95% KM (bootstrap t) UCL	5
Maximum	16.7	95% KM (BCA) UCL	4.697
Mean	3.652	95% KM (Percentile Bootstrap) UCL	4.634
Median	2.8	95% KM (Chebyshev) UCL	6.091
SD	3.238	97.5% KM (Chebyshev) UCL	7.127
k star	0.335	99% KM (Chebyshev) UCL	9.163
Theta star	10.89		
Nu star	22.8	**Potential UCLs to Use**	
AppChi2	12.94	95% KM (BCA) UCL	4.697
95% Gamma Approximate UCL	6.435		
95% Adjusted Gamma UCL	6.624		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)anthracene

General Statistics

Number of Valid Data	36	Number of Detected Data	31
Number of Distinct Detected Data	26	Number of Non-Detect Data	5
		Percent Non-Detects	13.89%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.03	Minimum Detected	-3.507
Maximum Detected	6.2	Maximum Detected	1.825
Mean of Detected	0.821	Mean of Detected	-0.992
SD of Detected	1.182	SD of Detected	1.389
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	20
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	16
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	55.56%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.628	Shapiro Wilk Test Statistic	0.962
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.733	Mean	-1.085
SD	1.117	SD	1.307
95% DL/2 (t) UCL	1.048	95% H-Stat (DL/2) UCL	1.458
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.147
		SD in Log Scale	1.35
		Mean in Original Scale	0.725
		SD in Original Scale	1.121
		95% t UCL	1.041
		95% Percentile Bootstrap UCL	1.064
		95% BCA Bootstrap UCL	1.178

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.701	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1.171	
nu star	43.47	
A-D Test Statistic	0.401	**Nonparametric Statistics**
5% A-D Critical Value	0.788	Kaplan-Meier (KM) Method
K-S Test Statistic	0.788	Mean 0.728
5% K-S Critical Value	0.164	SD 1.105
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 0.187
		95% KM (t) UCL 1.045
Assuming Gamma Distribution		95% KM (z) UCL 1.036
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 1.044
Minimum	1E-12	95% KM (bootstrap t) UCL 1.316
Maximum	6.2	95% KM (BCA) UCL 1.098
Mean	0.737	95% KM (Percentile Bootstrap) UCL 1.078
Median	0.395	95% KM (Chebyshev) UCL 1.545
SD	1.118	97.5% KM (Chebyshev) UCL 1.898
k star	0.306	99% KM (Chebyshev) UCL 2.592
Theta star	2.405	
Nu star	22.06	**Potential UCLs to Use**
AppChi2	12.38	95% KM (Chebyshev) UCL 1.545
95% Gamma Approximate UCL	1.313	
95% Adjusted Gamma UCL	1.349	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(a)pyrene

General Statistics

Number of Valid Data	37	Number of Detected Data	31
Number of Distinct Detected Data	27	Number of Non-Detect Data	6
		Percent Non-Detects	16.22%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.021	Minimum Detected	-3.863
Maximum Detected	3.9	Maximum Detected	1.361
Mean of Detected	0.745	Mean of Detected	-0.979
SD of Detected	0.839	SD of Detected	1.356
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.72	Maximum Non-Detect	-0.329

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	26
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	11
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	70.27%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.777	Shapiro Wilk Test Statistic	0.954
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.66	Mean	-1.072
SD	0.792	SD	1.26
95% DL/2 (t) UCL	0.88	95% H-Stat (DL/2) UCL	1.336
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.159
		SD in Log Scale	1.314
		Mean in Original Scale	0.646
		SD in Original Scale	0.8
		95% t UCL	0.868
		95% Percentile Bootstrap UCL	0.878
		95% BCA Bootstrap UCL	0.92

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.797	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.935		
nu star	49.41		
A-D Test Statistic	0.268	**Nonparametric Statistics**	
5% A-D Critical Value	0.782	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.782	Mean	0.651
5% K-S Critical Value	0.163	SD	0.788
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.132
		95% KM (t) UCL	0.874
Assuming Gamma Distribution		95% KM (z) UCL	0.868
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.873
Minimum	0.021	95% KM (bootstrap t) UCL	0.976
Maximum	3.9	95% KM (BCA) UCL	0.905
Mean	0.67	95% KM (Percentile Bootstrap) UCL	0.877
Median	0.42	95% KM (Chebyshev) UCL	1.226
SD	0.79	97.5% KM (Chebyshev) UCL	1.475
k star	0.771	99% KM (Chebyshev) UCL	1.964
Theta star	0.869		
Nu star	57.06	**Potential UCLs to Use**	
AppChi2	40.7	95% KM (Chebyshev) UCL	1.226
95% Gamma Approximate UCL	0.94		
95% Adjusted Gamma UCL	0.954		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(b)fluoranthene

General Statistics

Number of Valid Data	37	Number of Detected Data	31
Number of Distinct Detected Data	28	Number of Non-Detect Data	6
		Percent Non-Detects	16.22%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.029	Minimum Detected	-3.54
Maximum Detected	3.7	Maximum Detected	1.308
Mean of Detected	0.914	Mean of Detected	-0.75
SD of Detected	0.913	SD of Detected	1.339
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.72	Maximum Non-Detect	-0.329

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	23
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	14
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	62.16%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.859	Shapiro Wilk Test Statistic	0.947
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.801	Mean	-0.881
SD	0.873	SD	1.263
95% DL/2 (t) UCL	1.043	95% H-Stat (DL/2) UCL	1.626
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.292	Mean in Log Scale	-0.945
SD	1.407	SD in Log Scale	1.309
95% MLE (t) UCL	0.683	Mean in Original Scale	0.79
95% MLE (Tiku) UCL	0.864	SD in Original Scale	0.881
		95% t UCL	1.034
		95% Percentile Bootstrap UCL	1.029
		95% BCA Bootstrap UCL	1.063

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.823	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	1.11		
nu star	51.03		
A-D Test Statistic	0.329	**Nonparametric Statistics**	
5% A-D Critical Value	0.781	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.781	Mean	0.791
5% K-S Critical Value	0.163	SD	0.869
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.146
		95% KM (t) UCL	1.036
Assuming Gamma Distribution		95% KM (z) UCL	1.03
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.036
Minimum	0.029	95% KM (bootstrap t) UCL	1.105
Maximum	3.7	95% KM (BCA) UCL	1.061
Mean	0.817	95% KM (Percentile Bootstrap) UCL	1.042
Median	0.495	95% KM (Chebyshev) UCL	1.425
SD	0.867	97.5% KM (Chebyshev) UCL	1.699
k star	0.801	99% KM (Chebyshev) UCL	2.239
Theta star	1.019		
Nu star	59.3	**Potential UCLs to Use**	
AppChi2	42.6	95% KM (Chebyshev) UCL	1.425
95% Gamma Approximate UCL	1.137		
95% Adjusted Gamma UCL	1.154		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Benzo(k)fluoranthene

General Statistics

Number of Valid Data	37	Number of Detected Data	27
Number of Distinct Detected Data	24	Number of Non-Detect Data	10
		Percent Non-Detects	27.03%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.032	Minimum Detected	-3.442
Maximum Detected	3	Maximum Detected	1.099
Mean of Detected	0.716	Mean of Detected	-0.965
SD of Detected	0.752	SD of Detected	1.245
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	1.1	Maximum Non-Detect	0.0953

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	28
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	9
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	75.68%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.822	Shapiro Wilk Test Statistic	0.957
5% Shapiro Wilk Critical Value	0.923	5% Shapiro Wilk Critical Value	0.923
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.593	Mean	-1.09
SD	0.675	SD	1.097
95% DL/2 (t) UCL	0.78	95% H-Stat (DL/2) UCL	0.969
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.4	Mean in Log Scale	-1.192
SD	0.974	SD in Log Scale	1.141
95% MLE (t) UCL	0.67	Mean in Original Scale	0.57
95% MLE (Tiku) UCL	0.959	SD in Original Scale	0.685
		95% t UCL	0.76
		95% Percentile Bootstrap UCL	0.758
		95% BCA Bootstrap UCL	0.799

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.845	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.847		
nu star	45.65		
A-D Test Statistic	0.592	**Nonparametric Statistics**	
5% A-D Critical Value	0.777	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.777	Mean	0.572
5% K-S Critical Value	0.174	SD	0.677
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.114
		95% KM (t) UCL	0.765
Assuming Gamma Distribution		95% KM (z) UCL	0.76
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.764
Minimum	0.032	95% KM (bootstrap t) UCL	0.814
Maximum	3	95% KM (BCA) UCL	0.774
Mean	0.687	95% KM (Percentile Bootstrap) UCL	0.771
Median	0.47	95% KM (Chebyshev) UCL	1.069
SD	0.651	97.5% KM (Chebyshev) UCL	1.284
k star	1.096	99% KM (Chebyshev) UCL	1.707
Theta star	0.627		
Nu star	81.09	**Potential UCLs to Use**	
AppChi2	61.34	95% KM (Chebyshev) UCL	1.069
95% Gamma Approximate UCL	0.908		
95% Adjusted Gamma UCL	0.919		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Cadmium

General Statistics

Number of Valid Data	34	Number of Detected Data	25
Number of Distinct Detected Data	25	Number of Non-Detect Data	9
		Percent Non-Detects	26.47%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.15	Minimum Detected	-1.897
Maximum Detected	12.8	Maximum Detected	2.549
Mean of Detected	1.912	Mean of Detected	-0.0384
SD of Detected	2.852	SD of Detected	1.173
Minimum Non-Detect	0.09	Minimum Non-Detect	-2.408
Maximum Non-Detect	12.3	Maximum Non-Detect	2.51

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	97.06%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.597	Shapiro Wilk Test Statistic	0.971
5% Shapiro Wilk Critical Value	0.918	5% Shapiro Wilk Critical Value	0.918
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.791	Mean	-0.329
SD	2.643	SD	1.523
95% DL/2 (t) UCL	2.558	95% H-Stat (DL/2) UCL	5.287
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.464
		SD in Log Scale	1.335
		Mean in Original Scale	1.484
		SD in Original Scale	2.54
		95% t UCL	2.221
		95% Percentile Bootstrap UCL	2.253
		95% BCA Bootstrap UCL	2.53

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.781	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	2.448		
nu star	39.04		
A-D Test Statistic	0.722	**Nonparametric Statistics**	
5% A-D Critical Value	0.779	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.779	Mean	1.55
5% K-S Critical Value	0.181	SD	2.512
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.446
		95% KM (t) UCL	2.304
Assuming Gamma Distribution		95% KM (z) UCL	2.282
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.299
Minimum	1E-12	95% KM (bootstrap t) UCL	3.351
Maximum	12.8	95% KM (BCA) UCL	2.373
Mean	1.664	95% KM (Percentile Bootstrap) UCL	2.352
Median	0.94	95% KM (Chebyshev) UCL	3.492
SD	2.533	97.5% KM (Chebyshev) UCL	4.332
k star	0.173	99% KM (Chebyshev) UCL	5.982
Theta star	9.646		
Nu star	11.73	**Potential UCLs to Use**	
AppChi2	5.05	95% KM (Chebyshev) UCL	3.492
95% Gamma Approximate UCL	3.865		
95% Adjusted Gamma UCL	4.038		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Carbazole

General Statistics

Number of Valid Data	36	Number of Detected Data	20
Number of Distinct Detected Data	17	Number of Non-Detect Data	16
		Percent Non-Detects	44.44%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.016	Minimum Detected	-4.135
Maximum Detected	2	Maximum Detected	0.693
Mean of Detected	0.232	Mean of Detected	-2.314
SD of Detected	0.437	SD of Detected	1.259
Minimum Non-Detect	0.36	Minimum Non-Detect	-1.022
Maximum Non-Detect	3.7	Maximum Non-Detect	1.308

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	36
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.483	Shapiro Wilk Test Statistic	0.952
5% Shapiro Wilk Critical Value	0.905	5% Shapiro Wilk Critical Value	0.905
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.318	Mean	-1.849
SD	0.494	SD	1.182
95% DL/2 (t) UCL	0.458	95% H-Stat (DL/2) UCL	0.532
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.404
		SD in Log Scale	0.983
		Mean in Original Scale	0.169
		SD in Original Scale	0.331
		95% t UCL	0.262
		95% Percentile Bootstrap UCL	0.27
		95% BCA Bootstrap UCL	0.327

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.635	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	0.365	
nu star	25.39	
A-D Test Statistic	0.942	**Nonparametric Statistics**
5% A-D Critical Value	0.783	Kaplan-Meier (KM) Method
K-S Test Statistic	0.783	Mean 0.186
5% K-S Critical Value	0.202	SD 0.338
Data follow Appr. Gamma Distribution at 5% Significance Level		SE of Mean 0.0616
		95% KM (t) UCL 0.29
Assuming Gamma Distribution		95% KM (z) UCL 0.287
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.29
Minimum	0.016	95% KM (bootstrap t) UCL 0.415
Maximum	2	95% KM (BCA) UCL 0.31
Mean	0.232	95% KM (Percentile Bootstrap) UCL 0.289
Median	0.231	95% KM (Chebyshev) UCL 0.455
SD	0.322	97.5% KM (Chebyshev) UCL 0.571
k star	1.113	99% KM (Chebyshev) UCL 0.799
Theta star	0.208	
Nu star	80.16	**Potential UCLs to Use**
AppChi2	60.53	95% KM (BCA) UCL 0.31
95% Gamma Approximate UCL	0.307	
95% Adjusted Gamma UCL	0.311	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TABLE D-2j
ProUCL Output for Aggregate Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

Chromium Total

General Statistics

Number of Valid Observations	34	Number of Distinct Observations	33

Raw Statistics		**Log-transformed Statistics**	
Minimum	5.7	Minimum of Log Data	1.74
Maximum	19200	Maximum of Log Data	9.863
Mean	963.8	Mean of log Data	3.437
Median	17.2	SD of log Data	1.83
SD	3825		
Coefficient of Variation	3.968		
Skewness	4.26		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.279	Shapiro Wilk Test Statistic	0.648
Shapiro Wilk Critical Value	0.933	Shapiro Wilk Critical Value	0.933
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2074	95% H-UCL	523.1
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	419.4
95% Adjusted-CLT UCL (Chen-1995)	2555	97.5% Chebyshev (MVUE) UCL	537
95% Modified-t UCL (Johnson-1978)	2154	99% Chebyshev (MVUE) UCL	768

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.213	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	4521	
MLE of Mean	963.8	
MLE of Standard Deviation	2087	
nu star	14.5	
Approximate Chi Square Value (.05)	6.914	**Nonparametric Statistics**
Adjusted Level of Significance	0.0422	95% CLT UCL 2043
Adjusted Chi Square Value	6.655	95% Jackknife UCL 2074
		95% Standard Bootstrap UCL 2042
Anderson-Darling Test Statistic	8.844	95% Bootstrap-t UCL 38957
Anderson-Darling 5% Critical Value	0.894	95% Hall's Bootstrap UCL 38231
Kolmogorov-Smirnov Test Statistic	0.456	95% Percentile Bootstrap UCL 2210
Kolmogorov-Smirnov 5% Critical Value	0.167	95% BCA Bootstrap UCL 2662
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 3823
		97.5% Chebyshev(Mean, Sd) UCL 5060
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 7490
95% Approximate Gamma UCL	2021	
95% Adjusted Gamma UCL	2100	

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL 3823

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

TABLE D-2j
ProUCL Output for Aggregate Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

Cobalt

General Statistics

Number of Valid Observations	34	Number of Distinct Observations	28

Raw Statistics		**Log-transformed Statistics**	
Minimum	1.8	Minimum of Log Data	0.588
Maximum	10.3	Maximum of Log Data	2.332
Mean	6.116	Mean of log Data	1.747
Median	5.7	SD of log Data	0.377
SD	2.149		
Coefficient of Variation	0.351		
Skewness	0.417		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.953	Shapiro Wilk Test Statistic	0.955
Shapiro Wilk Critical Value	0.933	Shapiro Wilk Critical Value	0.933
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	6.74	95% H-UCL	6.95
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	7.919
95% Adjusted-CLT UCL (Chen-1995)	6.751	97.5% Chebyshev (MVUE) UCL	8.688
95% Modified-t UCL (Johnson-1978)	6.744	99% Chebyshev (MVUE) UCL	10.2

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.26	**Data appear Normal at 5% Significance Level**
Theta Star	0.842	
MLE of Mean	6.116	
MLE of Standard Deviation	2.27	
nu star	493.7	
Approximate Chi Square Value (.05)	443.1	**Nonparametric Statistics**
Adjusted Level of Significance	0.0422	95% CLT UCL 6.722
Adjusted Chi Square Value	440.8	95% Jackknife UCL 6.74
		95% Standard Bootstrap UCL 6.718
Anderson-Darling Test Statistic	0.281	95% Bootstrap-t UCL 6.757
Anderson-Darling 5% Critical Value	0.748	95% Hall's Bootstrap UCL 6.774
Kolmogorov-Smirnov Test Statistic	0.0828	95% Percentile Bootstrap UCL 6.712
Kolmogorov-Smirnov 5% Critical Value	0.151	95% BCA Bootstrap UCL 6.746
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 7.723
		97.5% Chebyshev(Mean, Sd) UCL 8.418
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 9.784
95% Approximate Gamma UCL	6.813	
95% Adjusted Gamma UCL	6.85	

Potential UCL to Use	Use 95% Student's-t UCL 6.74

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Cymene (p-Isopropyltoluene)

General Statistics

Number of Valid Data	15	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	13
		Percent Non-Detects	86.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.011	Minimum Detected	-4.51
Maximum Detected	0.015	Maximum Detected	-4.2
Mean of Detected	0.013	Mean of Detected	-4.355
SD of Detected	0.00283	SD of Detected	0.219
Minimum Non-Detect	0.001	Minimum Non-Detect	-6.908
Maximum Non-Detect	0.002	Maximum Non-Detect	-6.215

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	13
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	86.67%

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0022	Mean	-7.122
SD	0.00445	SD	1.139
95% DL/2 (t) UCL	0.00422	95% H-Stat (DL/2) UCL	0.00382
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.0113
5% K-S Critical Value	N/A	SD	0.0009978
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0003643
		95% KM (t) UCL	0.0119
Assuming Gamma Distribution		95% KM (z) UCL	0.0119
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.014
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	0.015
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A

TABLE D-2j
ProUCL Output for Aggregate Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

Median	N/A	95% KM (Chebyshev) UCL	0.0129
SD	N/A	97.5% KM (Chebyshev) UCL	0.0135
k star	N/A	99% KM (Chebyshev) UCL	0.0149
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	
AppChi2	N/A	95% KM (t) UCL	0.0119
95% Gamma Approximate UCL	N/A	95% KM (% Bootstrap) UCL	N/A
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dibenz(a,h)anthracene

General Statistics

Number of Valid Data	37	Number of Detected Data	24
Number of Distinct Detected Data	22	Number of Non-Detect Data	13
		Percent Non-Detects	35.14%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	1.2	Maximum Detected	0.182
Mean of Detected	0.249	Mean of Detected	-1.902
SD of Detected	0.259	SD of Detected	1.108
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	3.7	Maximum Non-Detect	1.308

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	37
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.767	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.916	5% Shapiro Wilk Critical Value	0.916
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.287	Mean	-1.716
SD	0.341	SD	1.006
95% DL/2 (t) UCL	0.382	95% H-Stat (DL/2) UCL	0.446
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.04
		SD in Log Scale	0.932
		Mean in Original Scale	0.199
		SD in Original Scale	0.219
		95% t UCL	0.26
		95% Percentile Bootstrap UCL	0.264
		95% BCA Bootstrap UCL	0.279

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.249		
nu star	48.02		
A-D Test Statistic	0.513	**Nonparametric Statistics**	
5% A-D Critical Value	0.77	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.77	Mean	0.214
5% K-S Critical Value	0.183	SD	0.224
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0404
		95% KM (t) UCL	0.282
Assuming Gamma Distribution		95% KM (z) UCL	0.28
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.282
Minimum	0.022	95% KM (bootstrap t) UCL	0.305
Maximum	1.2	95% KM (BCA) UCL	0.285
Mean	0.251	95% KM (Percentile Bootstrap) UCL	0.283
Median	0.251	95% KM (Chebyshev) UCL	0.39
SD	0.208	97.5% KM (Chebyshev) UCL	0.466
k star	1.521	99% KM (Chebyshev) UCL	0.616
Theta star	0.165		
Nu star	112.6	**Potential UCLs to Use**	
AppChi2	89.07	95% KM (Percentile Bootstrap) UCL	0.283
95% Gamma Approximate UCL	0.318		
95% Adjusted Gamma UCL	0.321		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dieldrin

General Statistics

Number of Valid Data	37	Number of Detected Data	13
Number of Distinct Detected Data	12	Number of Non-Detect Data	24
		Percent Non-Detects	64.86%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.002	Minimum Detected	-6.215
Maximum Detected	0.13	Maximum Detected	-2.04
Mean of Detected	0.0207	Mean of Detected	-4.717
SD of Detected	0.035	SD of Detected	1.255
Minimum Non-Detect	0.0036	Minimum Non-Detect	-5.627
Maximum Non-Detect	0.019	Maximum Non-Detect	-3.963

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	34
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	91.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.571	Shapiro Wilk Test Statistic	0.926
5% Shapiro Wilk Critical Value	0.866	5% Shapiro Wilk Critical Value	0.866
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.00886	Mean	-5.614
SD	0.0221	SD	1.024
95% DL/2 (t) UCL	0.015	95% H-Stat (DL/2) UCL	0.00931
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.599
		SD in Log Scale	1.022
		Mean in Original Scale	0.00886
		SD in Original Scale	0.0221
		95% t UCL	0.015
		95% Percentile Bootstrap UCL	0.0156
		95% BCA Bootstrap UCL	0.0196

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**
k star (bias corrected)	0.603	**Data appear Lognormal at 5% Significance Level**
Theta Star	0.0343	
nu star	15.68	
A-D Test Statistic	0.853	**Nonparametric Statistics**
5% A-D Critical Value	0.773	Kaplan-Meier (KM) Method
K-S Test Statistic	0.773	Mean 0.00896
5% K-S Critical Value	0.246	SD 0.0217
Data not Gamma Distributed at 5% Significance Level		SE of Mean 0.00372
		95% KM (t) UCL 0.0153
Assuming Gamma Distribution		95% KM (z) UCL 0.0151
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL 0.0151
Minimum	0.002	95% KM (bootstrap t) UCL 0.0277
Maximum	0.13	95% KM (BCA) UCL 0.0163
Mean	0.0205	95% KM (Percentile Bootstrap) UCL 0.0159
Median	0.0204	95% KM (Chebyshev) UCL 0.0252
SD	0.0203	97.5% KM (Chebyshev) UCL 0.0322
k star	1.696	99% KM (Chebyshev) UCL 0.046
Theta star	0.0121	
Nu star	125.5	**Potential UCLs to Use**
AppChi2	100.6	95% KM (BCA) UCL 0.0163
95% Gamma Approximate UCL	0.0256	
95% Adjusted Gamma UCL	0.0259	

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Dimethyl phthalate

General Statistics

Number of Valid Data	37	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	34
		Percent Non-Detects	91.89%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.032	Minimum Detected	-3.442
Maximum Detected	0.14	Maximum Detected	-1.966
Mean of Detected	0.077	Mean of Detected	-2.746
SD of Detected	0.0562	SD of Detected	0.742
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	3.7	Maximum Non-Detect	1.308

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	37
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.923	Shapiro Wilk Test Statistic	0.99
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.306	Mean	-1.495
SD	0.379	SD	0.694
95% DL/2 (t) UCL	0.411	95% H-Stat (DL/2) UCL	0.363
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.746
		SD in Log Scale	0.521
		Mean in Original Scale	0.0732
		SD in Original Scale	0.0398
		95% t UCL	0.0843
		95% Percentile Bootstrap UCL	0.084
		95% BCA Bootstrap UCL	0.0859

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data appear Normal at 5% Significance Level**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.077
5% K-S Critical Value	N/A	SD	0.0459
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0324
		95% KM (t) UCL	0.132
Assuming Gamma Distribution		95% KM (z) UCL	0.13
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.143
Minimum	N/A	95% KM (bootstrap t) UCL	0.245
Maximum	N/A	95% KM (BCA) UCL	0.14
Mean	N/A	95% KM (Percentile Bootstrap) UCL	0.14
Median	N/A	95% KM (Chebyshev) UCL	0.218
SD	N/A	97.5% KM (Chebyshev) UCL	0.28
k star	N/A	99% KM (Chebyshev) UCL	0.4
Theta star	N/A		
Nu star	N/A	**Potential UCLs to Use**	

AppChi2	N/A	95% KM (t) UCL	0.132
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	0.14
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Di-n-octyl phthalate

General Statistics

Number of Valid Data	37	Number of Detected Data	6
Number of Distinct Detected Data	6	Number of Non-Detect Data	31
		Percent Non-Detects	83.78%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.03	Minimum Detected	-3.507
Maximum Detected	0.69	Maximum Detected	-0.371
Mean of Detected	0.18	Mean of Detected	-2.328
SD of Detected	0.253	SD of Detected	1.134
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386
Maximum Non-Detect	3.7	Maximum Non-Detect	1.308

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	37
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

Warning: There are only 6 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.65	Shapiro Wilk Test Statistic	0.92
5% Shapiro Wilk Critical Value	0.788	5% Shapiro Wilk Critical Value	0.788
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.307	Mean	-1.543
SD	0.388	SD	0.78
95% DL/2 (t) UCL	0.414	95% H-Stat (DL/2) UCL	0.383
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.628
		SD in Log Scale	0.633
		Mean in Original Scale	0.0933
		SD in Original Scale	0.108
		95% t UCL	0.123
		95% Percentile Bootstrap UCL	0.123
		95% BCA Bootstrap UCL	0.15

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.584	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.308		
nu star	7.013		
A-D Test Statistic	0.534	**Nonparametric Statistics**	
5% A-D Critical Value	0.716	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.716	Mean	0.0979
5% K-S Critical Value	0.341	SD	0.116
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0292
		95% KM (t) UCL	0.147
Assuming Gamma Distribution		95% KM (z) UCL	0.146
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.149
Minimum	0.03	95% KM (bootstrap t) UCL	0.167
Maximum	0.69	95% KM (BCA) UCL	0.144
Mean	0.18	95% KM (Percentile Bootstrap) UCL	0.147
Median	0.177	95% KM (Chebyshev) UCL	0.225
SD	0.096	97.5% KM (Chebyshev) UCL	0.28
k star	4.588	99% KM (Chebyshev) UCL	0.389
Theta star	0.0391		
Nu star	339.5	**Potential UCLs to Use**	
AppChi2	297.8	95% KM (t) UCL	0.147
95% Gamma Approximate UCL	0.205		
95% Adjusted Gamma UCL	0.206		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Indeno(1,2,3-cd)pyrene

General Statistics

Number of Valid Data	36	Number of Detected Data	31
Number of Distinct Detected Data	27	Number of Non-Detect Data	5
		Percent Non-Detects	13.89%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	0.022	Minimum Detected	-3.817
Maximum Detected	2.6	Maximum Detected	0.956
Mean of Detected	0.597	Mean of Detected	-1.198
SD of Detected	0.66	SD of Detected	1.324
Minimum Non-Detect	0.37	Minimum Non-Detect	-0.994
Maximum Non-Detect	0.39	Maximum Non-Detect	-0.942

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	23
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	13
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	63.89%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.793	Shapiro Wilk Test Statistic	0.951
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.54	Mean	-1.262
SD	0.627	SD	1.236
95% DL/2 (t) UCL	0.717	95% H-Stat (DL/2) UCL	1.06
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-1.31
		SD in Log Scale	1.265
		Mean in Original Scale	0.534
		SD in Original Scale	0.631
		95% t UCL	0.712
		95% Percentile Bootstrap UCL	0.706
		95% BCA Bootstrap UCL	0.74

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.8	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.746		
nu star	49.59		
A-D Test Statistic	0.381	**Nonparametric Statistics**	
5% A-D Critical Value	0.782	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.782	Mean	0.539
5% K-S Critical Value	0.163	SD	0.621
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.106
		95% KM (t) UCL	0.717
Assuming Gamma Distribution		95% KM (z) UCL	0.713
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.717
Minimum	0.022	95% KM (bootstrap t) UCL	0.761
Maximum	2.6	95% KM (BCA) UCL	0.752
Mean	0.558	95% KM (Percentile Bootstrap) UCL	0.72
Median	0.345	95% KM (Chebyshev) UCL	0.999
SD	0.623	97.5% KM (Chebyshev) UCL	1.199
k star	0.848	99% KM (Chebyshev) UCL	1.59
Theta star	0.658		
Nu star	61.09	**Potential UCLs to Use**	
AppChi2	44.11	95% KM (Chebyshev) UCL	0.999
95% Gamma Approximate UCL	0.773		
95% Adjusted Gamma UCL	0.785		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TABLE D-2j
ProUCL Output for Aggregate Soil- Area J
Scovill Industrial Landfill Site
Waterbury, Connecticut

Iron

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	28

Raw Statistics		**Log-transformed Statistics**	
Minimum	5440	Minimum of Log Data	8.602
Maximum	29200	Maximum of Log Data	10.28
Mean	13026	Mean of log Data	9.411
Median	11700	SD of log Data	0.362
SD	4962		
Coefficient of Variation	0.381		
Skewness	1.296		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.92	Shapiro Wilk Test Statistic	0.994
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	14594	95% H-UCL	14802
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	16920
95% Adjusted-CLT UCL (Chen-1995)	14779	97.5% Chebyshev (MVUE) UCL	18611
95% Modified-t UCL (Johnson-1978)	14631	99% Chebyshev (MVUE) UCL	21931

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.157	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	1820	
MLE of Mean	13026	
MLE of Standard Deviation	4869	
nu star	415.1	
Approximate Chi Square Value (.05)	368.9	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 14542
Adjusted Chi Square Value	366.3	95% Jackknife UCL 14594
		95% Standard Bootstrap UCL 14547
Anderson-Darling Test Statistic	0.196	95% Bootstrap-t UCL 14909
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL 15073
Kolmogorov-Smirnov Test Statistic	0.0879	95% Percentile Bootstrap UCL 14567
Kolmogorov-Smirnov 5% Critical Value	0.163	95% BCA Bootstrap UCL 14701
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 17043
		97.5% Chebyshev(Mean, Sd) UCL 18781
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 22195
95% Approximate Gamma UCL	14659	
95% Adjusted Gamma UCL	14763	

Potential UCL to Use	Use 95% Approximate Gamma UCL 14659

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Lead

General Statistics

Number of Valid Data	34	Number of Detected Data	31
Number of Distinct Detected Data	30	Number of Non-Detect Data	3
		Percent Non-Detects	8.82%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	2.6	Minimum Detected	0.956
Maximum Detected	683.5	Maximum Detected	6.527
Mean of Detected	144.2	Mean of Detected	3.989
SD of Detected	209.1	SD of Detected	1.512
Minimum Non-Detect	8.2	Minimum Non-Detect	2.104
Maximum Non-Detect	13.3	Maximum Non-Detect	2.588

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	24
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	29.41%

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.649	Shapiro Wilk Test Statistic	0.961
5% Shapiro Wilk Critical Value	0.929	5% Shapiro Wilk Critical Value	0.929
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	132	Mean	3.79
SD	203.3	SD	1.583
95% DL/2 (t) UCL	191	95% H-Stat (DL/2) UCL	378
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	80.29	Mean in Log Scale	3.801
SD	255.6	SD in Log Scale	1.57
95% MLE (t) UCL	154.5	Mean in Original Scale	132.1
95% MLE (Tiku) UCL	157.5	SD in Original Scale	203.2
		95% t UCL	191.1
		95% Percentile Bootstrap UCL	193.4
		95% BCA Bootstrap UCL	198.1

Gamma Distribution Test with Detected Values Only		**Data Distribution Test with Detected Values Only**	
k star (bias corrected)	0.586	**Data appear Lognormal at 5% Significance Level**	
Theta Star	246		
nu star	36.35		
A-D Test Statistic	1.077	**Nonparametric Statistics**	
5% A-D Critical Value	0.799	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.799	Mean	132.1
5% K-S Critical Value	0.165	SD	200.2
Data not Gamma Distributed at 5% Significance Level		SE of Mean	34.9
		95% KM (t) UCL	191.2
Assuming Gamma Distribution		95% KM (z) UCL	189.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	191.1
Minimum	1E-12	95% KM (bootstrap t) UCL	211.9
Maximum	683.5	95% KM (BCA) UCL	188.9
Mean	131.5	95% KM (Percentile Bootstrap) UCL	190.6
Median	50.65	95% KM (Chebyshev) UCL	284.2
SD	203.6	97.5% KM (Chebyshev) UCL	350.1
k star	0.202	99% KM (Chebyshev) UCL	479.4
Theta star	651		
Nu star	13.73	**Potential UCLs to Use**	
AppChi2	6.389	99% KM (Chebyshev) UCL	479.4
95% Gamma Approximate UCL	282.6		
95% Adjusted Gamma UCL	294		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Manganese

General Statistics

Number of Valid Observations	29	Number of Distinct Observations	29

Raw Statistics		**Log-transformed Statistics**	
Minimum	77.1	Minimum of Log Data	4.345
Maximum	442	Maximum of Log Data	6.091
Mean	243.3	Mean of log Data	5.431
Median	261	SD of log Data	0.393
SD	78.72		
Coefficient of Variation	0.324		
Skewness	-0.106		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.97	Shapiro Wilk Test Statistic	0.882
Shapiro Wilk Critical Value	0.926	Shapiro Wilk Critical Value	0.926
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	268.2	95% H-UCL	283.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	326.1
95% Adjusted-CLT UCL (Chen-1995)	267	97.5% Chebyshev (MVUE) UCL	360.9
95% Modified-t UCL (Johnson-1978)	268.1	99% Chebyshev (MVUE) UCL	429.1

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	7.203	**Data appear Normal at 5% Significance Level**
Theta Star	33.78	
MLE of Mean	243.3	
MLE of Standard Deviation	90.66	
nu star	417.7	
Approximate Chi Square Value (.05)	371.4	**Nonparametric Statistics**
Adjusted Level of Significance	0.0407	95% CLT UCL 267.3
Adjusted Chi Square Value	368.8	95% Jackknife UCL 268.2
		95% Standard Bootstrap UCL 266.8
Anderson-Darling Test Statistic	0.867	95% Bootstrap-t UCL 268.1
Anderson-Darling 5% Critical Value	0.746	95% Hall's Bootstrap UCL 267.9
Kolmogorov-Smirnov Test Statistic	0.142	95% Percentile Bootstrap UCL 267
Kolmogorov-Smirnov 5% Critical Value	0.163	95% BCA Bootstrap UCL 264.1
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 307
		97.5% Chebyshev(Mean, Sd) UCL 334.6
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 388.8
95% Approximate Gamma UCL	273.7	
95% Adjusted Gamma UCL	275.6	

Potential UCL to Use	Use 95% Student's-t UCL 268.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Mercury

General Statistics

Number of Valid Data	34	Number of Detected Data	16
Number of Distinct Detected Data	14	Number of Non-Detect Data	18
		Percent Non-Detects	52.94%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.068	Minimum Detected	-2.688
Maximum Detected	4.9	Maximum Detected	1.589
Mean of Detected	0.475	Mean of Detected	-1.681
SD of Detected	1.187	SD of Detected	1.047
Minimum Non-Detect	0.046	Minimum Non-Detect	-3.079
Maximum Non-Detect	0.99	Maximum Non-Detect	-0.0101

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	33
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	1
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	97.06%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.35	Shapiro Wilk Test Statistic	0.776
5% Shapiro Wilk Critical Value	0.887	5% Shapiro Wilk Critical Value	0.887
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.277	Mean	-2.238
SD	0.827	SD	1.089
95% DL/2 (t) UCL	0.517	95% H-Stat (DL/2) UCL	0.314
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.624
		SD in Log Scale	1.222
		Mean in Original Scale	0.242
		SD in Original Scale	0.83
		95% t UCL	0.484
		95% Percentile Bootstrap UCL	0.525
		95% BCA Bootstrap UCL	0.66

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.572	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	0.83		
nu star	18.3		
A-D Test Statistic	2.641	**Nonparametric Statistics**	
5% A-D Critical Value	0.783	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.783	Mean	0.267
5% K-S Critical Value	0.225	SD	0.813
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.144
		95% KM (t) UCL	0.511
Assuming Gamma Distribution		95% KM (z) UCL	0.504
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.506
Minimum	1E-12	95% KM (bootstrap t) UCL	2.293
Maximum	4.9	95% KM (BCA) UCL	0.552
Mean	0.427	95% KM (Percentile Bootstrap) UCL	0.541
Median	0.198	95% KM (Chebyshev) UCL	0.895
SD	0.849	97.5% KM (Chebyshev) UCL	1.167
k star	0.177	99% KM (Chebyshev) UCL	1.7
Theta star	2.405		
Nu star	12.06	**Potential UCLs to Use**	
AppChi2	5.269	95% KM (BCA) UCL	0.552
95% Gamma Approximate UCL	0.977		
95% Adjusted Gamma UCL	1.02		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

n-Butylbenzene

General Statistics

Number of Valid Data	15	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	14
		Percent Non-Detects	93.33%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable n-Butylbenzene was not processed!

Nickel

General Statistics

Number of Valid Observations	34	Number of Distinct Observations	33

Raw Statistics		**Log-transformed Statistics**	
Minimum	6.3	Minimum of Log Data	1.841
Maximum	2460	Maximum of Log Data	7.808
Mean	176.5	Mean of log Data	3.523
Median	22	SD of log Data	1.466
SD	506.6		
Coefficient of Variation	2.87		
Skewness	3.813		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.373	Shapiro Wilk Test Statistic	0.839
Shapiro Wilk Critical Value	0.933	Shapiro Wilk Critical Value	0.933
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	323.6	95% H-UCL	217.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	223.6
95% Adjusted-CLT UCL (Chen-1995)	380.2	97.5% Chebyshev (MVUE) UCL	280
95% Modified-t UCL (Johnson-1978)	333	99% Chebyshev (MVUE) UCL	390.7

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	0.383	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	460.6		
MLE of Mean	176.5		
MLE of Standard Deviation	285.2		
nu star	26.06		
Approximate Chi Square Value (.05)	15.43	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0422	95% CLT UCL	319.4
Adjusted Chi Square Value	15.02	95% Jackknife UCL	323.6
		95% Standard Bootstrap UCL	318
Anderson-Darling Test Statistic	4.931	95% Bootstrap-t UCL	672.8
Anderson-Darling 5% Critical Value	0.834	95% Hall's Bootstrap UCL	772.2
Kolmogorov-Smirnov Test Statistic	0.281	95% Percentile Bootstrap UCL	325.8
Kolmogorov-Smirnov 5% Critical Value	0.162	95% BCA Bootstrap UCL	389.5
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	555.2
		97.5% Chebyshev(Mean, Sd) UCL	719.1
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	1041
95% Approximate Gamma UCL	298.2		
95% Adjusted Gamma UCL	306.3		

Potential UCL to Use	Use 95% Chebyshev (Mean, Sd) UCL	555.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

2-Phenylbutane (sec-Butylbenzene)

General Statistics

Number of Valid Data	15	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	14
		Percent Non-Detects	93.33%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 2-Phenylbutane (sec-Butylbenzene) was not processed!

Thallium

General Statistics

Number of Valid Data	34	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	30
		Percent Non-Detects	88.24%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.84	Minimum Detected	-0.174
Maximum Detected	2	Maximum Detected	0.693
Mean of Detected	1.448	Mean of Detected	0.315
SD of Detected	0.525	SD of Detected	0.392
Minimum Non-Detect	0.724	Minimum Non-Detect	-0.323
Maximum Non-Detect	41.1	Maximum Non-Detect	3.716

Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	34
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	0
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	100.00%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.956	Shapiro Wilk Test Statistic	0.945
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.055	Mean	0.167
SD	5.528	SD	1.16
95% DL/2 (t) UCL	4.659	95% H-Stat (DL/2) UCL	3.956
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.372
		SD in Log Scale	0.328
		Mean in Original Scale	0.734
		SD in Original Scale	0.327
		95% t UCL	0.829
		95% Percentile Bootstrap UCL	0.827
		95% BCA Bootstrap UCL	0.852

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.495	**Data appear Normal at 5% Significance Level**	
Theta Star	0.58		
nu star	19.96		
A-D Test Statistic	0.277	**Nonparametric Statistics**	
5% A-D Critical Value	0.657	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.657	Mean	0.971
5% K-S Critical Value	0.395	SD	0.286
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0811
		95% KM (t) UCL	1.108
Assuming Gamma Distribution		95% KM (z) UCL	1.104
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.191
Minimum	0.799	95% KM (bootstrap t) UCL	1.053
Maximum	2.179	95% KM (BCA) UCL	2
Mean	1.577	95% KM (Percentile Bootstrap) UCL	1.778
Median	1.635	95% KM (Chebyshev) UCL	1.324
SD	0.284	97.5% KM (Chebyshev) UCL	1.477
k star	24.19	99% KM (Chebyshev) UCL	1.778
Theta star	0.0652		
Nu star	1645	**Potential UCLs to Use**	
AppChi2	1551	95% KM (t) UCL	1.108
95% Gamma Approximate UCL	1.672	95% KM (Percentile Bootstrap) UCL	1.778
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Vanadium

General Statistics

Number of Valid Observations	34	Number of Distinct Observations	34

Raw Statistics		**Log-transformed Statistics**	
Minimum	12.4	Minimum of Log Data	2.518
Maximum	474	Maximum of Log Data	6.161
Mean	104	Mean of log Data	4.071
Median	48.95	SD of log Data	1.048
SD	129.8		
Coefficient of Variation	1.248		
Skewness	2.105		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.671	Shapiro Wilk Test Statistic	0.935
Shapiro Wilk Critical Value	0.933	Shapiro Wilk Critical Value	0.933
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	141.6	95% H-UCL	160.2
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	189.8
95% Adjusted-CLT UCL (Chen-1995)	149.2	97.5% Chebyshev (MVUE) UCL	229
95% Modified-t UCL (Johnson-1978)	143	99% Chebyshev (MVUE) UCL	306.1

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.938	**Data appear Lognormal at 5% Significance Level**
Theta Star	110.9	
MLE of Mean	104	
MLE of Standard Deviation	107.4	
nu star	63.75	
Approximate Chi Square Value (.05)	46.39	**Nonparametric Statistics**
Adjusted Level of Significance	0.0422	95% CLT UCL 140.6
Adjusted Chi Square Value	45.65	95% Jackknife UCL 141.6
		95% Standard Bootstrap UCL 139.9
Anderson-Darling Test Statistic	1.404	95% Bootstrap-t UCL 158.9
Anderson-Darling 5% Critical Value	0.776	95% Hall's Bootstrap UCL 144.1
Kolmogorov-Smirnov Test Statistic	0.167	95% Percentile Bootstrap UCL 143
Kolmogorov-Smirnov 5% Critical Value	0.155	95% BCA Bootstrap UCL 150.6
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 201
		97.5% Chebyshev(Mean, Sd) UCL 243
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 325.4
95% Approximate Gamma UCL	142.9	
95% Adjusted Gamma UCL	145.2	

Potential UCL to Use	Use 95% H-UCL 160.2

ProUCL computes and outputs H-statistic based UCLs for historical reasons only.
H-statistic often results in unstable (both high and low) values of UCL95 as shown in examples in the Technical Guide.
It is therefore recommended to avoid the use of H-statistic based 95% UCLs.
Use of nonparametric methods are preferred to compute UCL95 for skewed data sets which do not follow a gamma distribution.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

Zinc

General Statistics

Number of Valid Observations	34	Number of Distinct Observations	34

Raw Statistics		**Log-transformed Statistics**	
Minimum	19.3	Minimum of Log Data	2.96
Maximum	18400	Maximum of Log Data	9.82
Mean	1425	Mean of log Data	5.504
Median	203.5	SD of log Data	1.777
SD	3839		
Coefficient of Variation	2.694		
Skewness	3.834		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.397	Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical Value	0.933	Shapiro Wilk Critical Value	0.933
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	2539	95% H-UCL	3551
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	2975
95% Adjusted-CLT UCL (Chen-1995)	2971	97.5% Chebyshev (MVUE) UCL	3799
95% Modified-t UCL (Johnson-1978)	2611	99% Chebyshev (MVUE) UCL	5417

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	0.364	**Data appear Lognormal at 5% Significance Level**
Theta Star	3913	
MLE of Mean	1425	
MLE of Standard Deviation	2361	
nu star	24.76	
Approximate Chi Square Value (.05)	14.43	
Adjusted Level of Significance	0.0422	
Adjusted Chi Square Value	14.04	
Anderson-Darling Test Statistic	2.539	
Anderson-Darling 5% Critical Value	0.839	
Kolmogorov-Smirnov Test Statistic	0.215	
Kolmogorov-Smirnov 5% Critical Value	0.162	
Data not Gamma Distributed at 5% Significance Level		

Nonparametric Statistics	
95% CLT UCL	2508
95% Jackknife UCL	2539
95% Standard Bootstrap UCL	2489
95% Bootstrap-t UCL	6614
95% Hall's Bootstrap UCL	7415
95% Percentile Bootstrap UCL	2598
95% BCA Bootstrap UCL	3103
95% Chebyshev(Mean, Sd) UCL	4295
97.5% Chebyshev(Mean, Sd) UCL	5537
99% Chebyshev(Mean, Sd) UCL	7976

Assuming Gamma Distribution	
95% Approximate Gamma UCL	2445
95% Adjusted Gamma UCL	2513

Potential UCL to Use	
Use 95% Chebyshev (Mean, Sd) UCL	4295

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL. These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). For additional insight, the user may want to consult a statistician.

APPENDIX E

TABLE E-1
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CURRENT/FUTURE CHILD RESIDENT - NON-CANCER		
BASED ON: EPA, 1989a		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE: To estimate intake and non-cancer risks from incidental ingestion of surface soil by the current/future child resident for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{Cs \times IR\text{-}S \times FI \times OABS \times EF \times ED \times CF}{BW \times AT}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
Cs	=	exposure point concentration in soil (mg/kg)
IR-S	=	ingestion rate of soil (mg/day)
FI	=	fraction ingested from contaminated source (unitless)
OABS	=	oral absorption factor (unitless)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
RfDo	=	oral noncarcinogenic reference dose (mg/kg-day)

RISKS:

HQ (Noncarcinogens) = Intake (mg/kg-day) / RfDo (mg/kg-day)

ASSUMPTIONS:

Cs	=	4.414	mg/kg	Arsenic, Surface Soil, Risk Area E3
IR	=	200	mg/day	
FI	=	1	unitless	
OABS	=	1	unitless	
EF	=	350	days/year	
ED	=	6	years	
CF	=	1.0E-06	kg/mg	
BW	=	15	kg	
ATnc	=	2190	days	
RfDo	=	3.00E-04	mg/kg-day	

EXAMPLE NON-CANCER CALCULATION

$$\text{Intake} = \frac{4.414 \text{ mg/kg} \times 200 \text{ mg/day} \times 1 \text{ unitless} \times 1 \text{ unitless} \times 350 \text{ days/year} \times 6 \text{ years} \times 0.000001 \text{ kg/mg}}{15 \text{ kg} \times 2190 \text{ days}}$$

Intake = **5.6E-05** mg/kg/day

HQ = 5.6E-05 mg/kg/day / 0.0003 mg/kg-day = Hazard Quotient

HQ = 0.19

TABLE E-2
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CURRENT/FUTURE RESIDENT - CANCER		
BASED ON: EPA, 1989a		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE: To estimate intake and cancer risks from incidental ingestion of surface soil by the current/future resident for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{Cs \times IFSadj \times CF \times FI \times OABS \times EF}{AT}$$

Where:

Intake = estimated exposure intake (mg/kg-day)
Cs = exposure point concentration in soil (mg/kg)
IFSadj = age-adjusted soil ingestion factor (mg-y/kg-day)

$$IFSadj = \frac{IRS_c \times ED_c}{BW_c} + \frac{IRS_a \times ED_a}{BW_a}$$

IRSc = ingestion rate of soil - child (mg/day)
EDc = exposure duration - child (years)
BWc = body weight - child (kg)
IRSa = ingestion rate of soil - adult (mg/day)
EDa = exposure duration - adult (years)
BWa = body weight - adult (kg)
CF = conversion factor (kg/mg)
FI = fraction ingested from contaminated source (unitless)
OABS = oral absorption factor (unitless)
EF = exposure frequency (days/year)
AT = averaging time (days)
CSFo = oral carcinogenic slope factor $(mg/kg\text{-}day)^{-1}$

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFo $((mg/kg\text{-}day)^{-1})$

ASSUMPTIONS:

Cs	=	4.414	mg/kg	Arsenic, Surface Soil, Risk Area E3
IFSadj	=	114	mg-y/kg-day	or $= \frac{200 \text{ mg/day x 6 years}}{15 \text{ kg}} + \frac{100 \text{ mg/day x 24 years}}{70 \text{ kg}}$
IRSc	=	200	mg/day	
EDc	=	6	years	
BWc	=	15	kg	
IRSa	=	100	mg/day	
EDa	=	24	years	
BWa	=	70	kg	
FI	=	1	unitless	
OABS	=	1	unitless	
CF	=	1.0E-06	kg/mg	
EF	=	350	days/year	
Atc	=	25550	days	
CSFo	=	1.5E+00	$(mg/kg\text{-}day)^{-1}$	

TABLE E-2
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CURRENT/FUTURE RESIDENT - CANCER		
BASED ON: EPA, 1989a		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

$$\text{Intake} = \frac{4.414 \text{ mg/kg} \times 114 \text{ mg-y/kg-day} \times 1 \text{ unitless} \times 1 \text{ unitless} \times 0.000001 \text{ kg/mg} \times 350 \text{ days/year}}{25550 \text{ days}}$$

Intake = **6.9E-06** mg/kg-day

ILCR = 6.9E-06 mg/kg-day x 1.5 (mg/kg-day)-1 = Incremental Lifetime Cancer Risk

ILCR = 1.0E-05

TABLE E-3
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FUTURE COMMERCIAL/INDUSTRIAL WORKER		
BASED ON: EPA, 1989a and EPA, 2004		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE: To estimate intake, carcinogenic and non-cancer risks from dermal contact with surface soil by the future commercial/industrial worker for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{Cs \times SA \times SSAF \times DABS \times EV \times EF \times ED \times CF}{BW \times AT}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
Cs	=	exposure point concentration in soil (mg/kg)
SA	=	surface area (cm^2)
SSAF	=	soil-to-skin adherence factor (mg/cm^2-event)
DABS	=	dermal absorption factor (unitless)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor $(mg/kg\text{-}day)^{-1}$
RfDd	=	dermal noncarcinogenic reference dose (mg/kg-day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFd ($(mg/kg\text{-}day)^{-1}$)
HQ (Noncarcinogens) = Intake (mg/kg-day) / RfDd (mg/kg-day)

ASSUMPTIONS:

Cs	=	5.65E-06	mg/kg	2,3,7,8-TCDD TEQ, Aggregate Soil, Risk Area E2
SA	=	3300	cm^2	
SSAF	=	0.2	mg/cm^2-event	
DABS	=	0.03	unitless	Benzo(a)anthracene value
EV	=	1	events/day	
EF	=	250	days/year	
ED	=	25	years	
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
ATc	=	25550	days	
ATnc	=	9125	days	
CSFd	=	1.30E+05	$(mg/kg\text{-}day)^{-1}$	
RfDd	=	1.00E-09	mg/kg-day	

TABLE E-3
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FUTURE COMMERCIAL/INDUSTRIAL WORKER		
BASED ON: EPA, 1989a and EPA, 2004		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

$$\text{Intake} = \frac{0.00000565 \text{ mg/kg} \times 3300 \text{ cm2} \times 0.2 \text{ mg/cm2-event} \times 0.03 \text{ unitless} \times 1 \text{ events/day} \times 250 \text{ days/year} \times 25 \text{ years} \times 0.000001 \text{ k}}{70 \text{ kg} \times 25550 \text{ days}}$$

Intake = **3.9E-13** mg/kg-day

ILCR = 3.9E-13 mg/kg-day x 130000 (mg/kg-day)-1 = Incremental Lifetime Cancer Risk

ILCR = 5.1E-08

EXAMPLE NON-CANCER CALCULATION

$$\text{Intake} = \frac{0.00000565 \text{ mg/kg} \times 3300 \text{ cm2} \times 0.2 \text{ mg/cm2-event} \times 0.03 \text{ unitless} \times 1 \text{ events/day} \times 250 \text{ days/year} \times 25 \text{ years} \times 0.000001 \text{ k}}{70 \text{ kg} \times 9125 \text{ days}}$$

Intake = **1.1E-12** mg/kg-day

HQ = 1.1E-12 mg/kg-day / 0.000000001 mg/kg-day = Hazard Quotient

HQ = 0.0011

TABLE E-4
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF SOIL COPCs CONSTRUCTION WORKER		
BASED ON: EPA, 1989a and EPA, 2009b		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE: To estimate intake, carcinogenic and non-cancer risks from inhalation of COPCs from fugative dust and volatile emissions from surface soil by the current/future construction worker for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{Cs} \times \text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{PEF} \times \text{AT}}$$

Where:

Intake	=	estimated exposure from air (µg/m^3)
CS	=	exposure point concentration in soil (mg/kg)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (µg/mg)
PEF	=	particulate emission factor from soil (m^3/kg)
AT	=	averaging time (hours)
URFi	=	inhalation unit risk factor (µg/m^3)$^{-1}$
RfC	=	inhalation noncarcinogenic reference concentration (mg/m^3)

RISKS:

ILCR (Carcinogens) = Intake (µg/m^3) x URFi ((µg/m^3)$^{-1}$)
HQ (Noncarcinogens) = Intake (µg/m^3) / RfC (µg/m^3)

ASSUMPTIONS:

Cs	=	49.4	mg/kg	Chromium, Aggregate Soil, Risk Area E3
PEF	=	1.40E+06	m^3/kg	
VF	=	NA	m^3/kg	chemical-specific; pertains to volatiles only
CF	=	1000	µg/mg	
ET	=	8	hours/day	
EF	=	130	days/year	
ED	=	1	year	
ATc	=	613200	hours	
ATnc	=	8760	hours	
URFi	=	0.084	(µg/m^3)$^{-1}$	
RfC	=	1.00E-04	mg/m^3	

TABLE E-4
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF SOIL COPCs CONSTRUCTION WORKER		
BASED ON: EPA, 1989a and EPA, 2009b		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

$$\text{Intake} = \frac{\text{49.4 mg/kg x 8 hours/day x 130 days/year x 1 year x 1000 µg/mg}}{\text{1400000 m3/kg x 613200 hours}}$$

Intake = 6.0E-05 µg/m3

ILCR = 6.0E-05 µg/m3 x 0.084 (µg/m3)-1 = Incremental Lifetime Cancer Risk

ILCR = 5.0E-06

EXAMPLE NON-CANCER CALCULATION

$$\text{Intake} = \frac{\text{49.4 mg/kg x 8 hours/day x 130 days/year x 1 year x 1000 µg/mg}}{\text{1400000 m3/kg x 8760 hours}}$$

Intake = 4.2E-03 µg/m3

HQ = 4.2E-03 µg/m3 / 1000 µg/mg / 0.0001 mg/m3 = Hazard Quotient

HQ = 0.042

TABLE E-5
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT CURRENT/FUTURE TRESPASSER		
BASED ON: EPA, 1989a		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE:

To estimate intake, carcinogenic and non-cancer risks from incidental ingestion of COPCs from sediment by the current/future trespasser for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{Csd} \times \text{IRsd} \times \text{FI} \times \text{OABS} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
CSd	=	exposure point concentration in sediment (mg/kg)
IR-SD	=	ingestion rate of sediment (mg/day)
FI	=	fraction ingested from contaminated source (unitless)
OABS	=	oral absorption factor (unitless)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor $(\text{mg/kg-day})^{-1}$
RfDo	=	oral noncarcinogenic reference dose (mg/kg-day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFo $(\text{mg/kg-day})^{-1}$
HQ (Noncarcinogens) = Intake (mg/kg-day) / RfDo (mg/kg-day)

ASSUMPTIONS:

CSd	=	1.8	mg/kg	Aroclor 1254, Current/Future Sediment, Risk Area J
IR-SD	=	100	mg/day	
FI	=	1	unitless	
OABS	=	1	unitless	
EF	=	18	days/year	
ED	=	10	years	
CF	=	1.0E-06	kg/mg	
BW	=	39	kg	
ATtc	=	25550	days	
ATnc	=	3650	days	
CSFo	=	2.00E+00	$(\text{mg/kg-day})^{-1}$	
RfDo	=	2.00E-05	mg/kg-day	

TABLE E-5
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT CURRENT/FUTURE TRESPASSER		
BASED ON: EPA, 1989a		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

$$\text{Intake} = \frac{1.8\ \text{mg/kg} \times 100\ \text{mg/day} \times 1\ \text{unitless} \times 1\ \text{unitless} \times 18\ \text{days/year} \times 10\ \text{years} \times 0.000001\ \text{kg/mg}}{39\ \text{kg} \times 25550\ \text{days}}$$

Intake = **3.3E-08** mg/kg-day

ILCR = 3.3E-08 mg/kg-day x 2 (mg/kg-day)-1 = Incremental Lifetime Cancer Risk

ILCR = 6.5E-08

EXAMPLE NON-CANCER CALCULATION

$$\text{Intake} = \frac{1.8\ \text{mg/kg} \times 100\ \text{mg/day} \times 1\ \text{unitless} \times 1\ \text{unitless} \times 18\ \text{days/year} \times 10\ \text{years} \times 0.000001\ \text{kg/mg}}{39\ \text{kg} \times 3650\ \text{days}}$$

Intake = **2.3E-07** mg/kg/day

HQ = 2.3E-07 mg/kg/day / 0.00002 mg/kg-day = Hazard Quotient

HQ = 0.011

TABLE E-6
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT CURRENT/FUTURE TRESPASSER		
BASED ON: EPA, 1989a and EPA, 2004		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE: To estimate intake, carcinogenic and non-cancer risks from dermal contact with COPCs from sediment by the current/future trespasser for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{Csd} \times \text{SA} \times \text{SSAF} \times \text{DABS} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
CSd	=	exposure point concentration in sediment (mg/kg)
SA	=	surface area (cm^2)
SSAF	=	sediment-to-skin adherence factor (mg/cm^2-event)
DABS	=	dermal absorption factor (unitless)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor $(mg/kg\text{-}day)^{-1}$
RfDd	=	dermal noncarcinogenic reference dose (mg/kg-day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFd $(mg/kg\text{-}day)^{-1}$
HQ (Noncarcinogens) = Intake (mg/kg-day) / RfDd (mg/kg-day)

ASSUMPTIONS:

Csed	=	1.8	mg/kg	Aroclor 1254, Current/Future Sediment, Risk Area J
SA	=	4184	cm^2	
SSAF	=	0.2	mg/cm^2-event	
DABS	=	0.14	unitless	Aroclor 1254 value
EV	=	1	events/day	
EF	=	18	days/year	
ED	=	10	years	
CF	=	1.0E-06	kg/mg	
BW	=	39	kg	
ATc	=	25550	days	
ATnc	=	3650	days	
CSFd	=	2.00E+00	$(mg/kg\text{-}day)^{-1}$	
RfDd	=	2.00E-05	mg/kg-day	

TABLE E-6
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT CURRENT/FUTURE TRESPASSER		
BASED ON: EPA, 1989a and EPA, 2004		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

$$\text{Intake} = \frac{1.8 \text{ mg/kg} \times 4184 \text{ cm2} \times 0.2 \text{ mg/cm2-event} \times 0.14 \text{ unitless} \times 1 \text{ events/day} \times 18 \text{ days/year} \times 10 \text{ years} \times 0.000001 \text{ l}}{39 \text{ kg} \times 25550 \text{ days}}$$

Intake = 3.8E-08 mg/kg-day

ILCR = 3.8E-08 mg/kg-day x 2 (mg/kg-day)-1 = Incremental Lifetime Cancer Risk

ILCR = 7.6E-08

EXAMPLE NON-CANCER CALCULATION

$$\text{Intake} = \frac{1.8 \text{ mg/kg} \times 4184 \text{ cm2} \times 0.2 \text{ mg/cm2-event} \times 0.14 \text{ unitless} \times 1 \text{ events/day} \times 18 \text{ days/year} \times 10 \text{ years} \times 0.000001 \text{ l}}{39 \text{ kg} \times 3650 \text{ days}}$$

Intake = 2.7E-07 mg/kg-day

HQ = 2.7E-07 mg/kg-day / 0.00002 mg/kg-day = Hazard Quotient

HQ = 0.013

TABLE E-7
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER CURRENT/FUTURE TRESPASSER		
BASED ON: EPA, 1989a and EPA, 2004		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

PURPOSE: To estimate intake, carcinogenic and non-cancer risks from dermal contact with COPCs from surface water by the current/future trespasser for the Reasonable Maximum Exposure (RME).

EQUATION:

$$DAD = \frac{DA_{event} \times SA \times EV \times EF \times ED}{BW \times AT}$$

Where:

DAD = dermal abosrbed dosed (mg/kg-day)

DAevent = for organics:

Equations for DAevent for organics:

If tevent < t*

$$DA_{event} = 2FA \times Kp \times CW \times CF\sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}}$$

If tevent > t*

$$DA_{event} = FA \times Kp \times CW \times CF \times \left[\frac{t_{event}}{1+B} + 2\tau_{event}\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

Equation for DAevent for inorganics:

DAevent = CW x Kp x t_{event} x CF

SA = surface area (cm^2)
EV = event frequency (events/day)
EF = exposure frequency (days/year)
ED = exposure duration (years)
BW = body weight (kg)
AT = averaging time (days)
CW = exposure point concentration in water (µg/L)
Kp = dermal permeability coefficients (cm/hr)
t_{event} = event time (hr/event)
CF = conversion factor (mg-L/µg-cm^3)
FA = fraction absorbed water (unitless)
t* = time to reach steady state (hour)
τ_{event} = lag time per event (hr/event)
B = ratio of permeability coefficient (unitless)
CSFd = dermal carcinogenic slope factor $(mg/kg\text{-}day)^{-1}$
RfDd = dermal noncarcinogenic reference dose (mg/kg-day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFd $(mg/kg\text{-}day)^{-1}$
HQ (Noncarcinogens) = Intake (mg/kg-day) / RfDd (mg/kg-day)

ASSUMPTIONS:

DAevent	=	2.82E-09	mg/cm^2-event	
SA	=	4184	cm^2	
CW	=	1.41	µg/L	Arsenic, Current/Future Surface Water, Risk Area J
EV	=	1	events/day	
EF	=	18	days/year	
ED	=	10	years	
BW	=	39	kg	
ATc	=	25550	days	
ATnc	=	3650	days	
Kp	=	0.001	cm/hr	chemical-specific, arsenic value
t_{event}	=	2	hours/event	
CF	=	1.0E-06	mg-L/µg-cm^3	
CSFd	=	1.50E+00	$(mg/kg\text{-}day)^{-1}$	
RfDd	=	3.00E-04	mg/kg-day	

TABLE E-7
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER CURRENT/FUTURE TRESPASSER		
BASED ON: EPA, 1989a and EPA, 2004		
BY: F. SEVOLD	**CHECKED BY:** T. SPECK	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

$$\text{Intake} = \frac{0.00000000282 \text{ mg/cm2-event} \times 4184 \text{ cm2} \times 1 \text{ events/day} \times 18 \text{ days/year} \times 10 \text{ years}}{39 \text{ kg} \times 25550 \text{ days}}$$

Intake = **2.13E-09** mg/kg-day

ILCR = 2.13E-09 mg/kg-day x 1.5 (mg/kg-day)-1 = Incremental Lifetime Cancer Risk

ILCR = 3.2E-09

EXAMPLE NON-CANCER CALCULATION

$$\text{Intake} = \frac{0.00000000282 \text{ mg/cm2-event} \times 4184 \text{ cm2} \times 1 \text{ events/day} \times 18 \text{ days/year} \times 10 \text{ years}}{39 \text{ kg} \times 3650 \text{ days}}$$

Intake = **1.49E-08** mg/kg-day

HQ = 1.49E-08 mg/kg-day / 0.0003 mg/kg-day = Hazard Quotient

HQ = 0.000050

TABLE E-8
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CURRENT/FUTURE RESIDENT - CANCER		
BASED ON: EPA, 1989a and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

PURPOSE: To estimate mutagenic COPC intake and cancer risks from incidental ingestion of surface soil by the current/future resident for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{Cs \times IRS \times FI \times OABS \times CF \times EF \times ED}{BW \times AT}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
Cs	=	exposure point concentration in soil (mg/kg)
IRS	=	ingestion rate of soil (mg/day)
FI	=	fraction ingested from contaminated source (unitless)
OABS	=	oral absorption factor (unitless)
CF	=	conversion factor (kg/mg)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg\text{-}day)^{-1}$)
ADAF	=	age-dependent adjustment factor (unitless)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFo ($(mg/kg\text{-}day)^{-1}$) x ADAF

		Age					
ASSUMPTIONS:		0-<2	2-<6	6-<16	16-<30		
Cs	=	1.397	1.397	1.397	1.397	mg/kg	Benzo(a)pyrene, Surface Soil, Risk Area E3
IRS	=	200	200	100	100	mg/day	
FI	=	1	1	1	1	unitless	
OABS	=	1	1	1	1	unitless	
CF	=	1.0E-06	1.0E-06	1.0E-06	1.0E-06	kg/mg	
EF	=	350	350	350	350	days/year	
ED	=	2	4	10	14	years	
BW	=	15	15	70	70	kg	
AT	=	25550	25550	25550	25550	days	
CSFo	=	7.3E+00	7.3E+00	7.3E+00	7.3E+00	$(mg/kg\text{-}day)^{-1}$	
ADAF	=	10	3	3	1	unitless	

TABLE E-8
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL CURRENT/FUTURE RESIDENT - CANCER		
BASED ON: EPA, 1989a and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

Intake (0-<2) = $\frac{1.397 \text{ mg/kg} \times 200 \text{ mg/day} \times 1 \times 1 \times 0.000001 \text{ kg/mg} \times 350 \text{ days/year} \times 2 \text{ years}}{15 \text{ kg} \times 25550 \text{ days}}$

Intake (0-<2) = 5.1E-07 mg/kg-day

ILCR (0-<2) = 5.1E-07 mg/kg-day x 7.3 (mg/kg-day)-1 x 10

ILCR (0-<2) = 3.7E-05

Intake (2-<6) = $\frac{1.397 \text{ mg/kg} \times 200 \text{ mg/day} \times 1 \times 1 \times 0.000001 \text{ kg/mg} \times 350 \text{ days/year} \times 4 \text{ years}}{15 \text{ kg} \times 25550 \text{ days}}$

Intake (2-<6) = 1.0E-06 mg/kg-day

ILCR (2-<6) = 1.0E-06 mg/kg-day x 7.3 (mg/kg-day)-1 x 3

ILCR (2-<6) = 2.2E-05

Intake (6-<16) = $\frac{1.397 \text{ mg/kg} \times 100 \text{ mg/day} \times 1 \times 1 \times 0.000001 \text{ kg/mg} \times 350 \text{ days/year} \times 10 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}}$

Intake (6-<16) = 2.7E-07 mg/kg-day

ILCR (6-<16) = 2.7E-07 mg/kg-day x 7.3 (mg/kg-day)-1 x 3

ILCR (6-<16) = 6.0E-06

Intake (16-<30) = $\frac{1.397 \text{ mg/kg} \times 100 \text{ mg/day} \times 1 \times 1 \times 0.000001 \text{ kg/mg} \times 350 \text{ days/year} \times 14 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}}$

Intake (16-<30) = 3.8E-07 mg/kg-day

ILCR (16-<30) = 3.8E-07 mg/kg-day x 7.3 (mg/kg-day)-1 x 1

ILCR (16-<30) = 2.8E-06

ILCR (lifetime) = 3.7E-05 + 2.2E-05 + 6.0E-06 + 2.8E-06

ILCR (lifetime) = 6.8E-05

TABLE E-9
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CURRENT/FUTURE CHILD RECREATIONAL VISITOR (0-6 YRS)		
BASED ON: EPA, 1989a; EPA, 2004; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

PURPOSE: To estimate mutagenic COPC intake and cancer risks from dermal contact with surface soil by the current/future child recreational visitor (0-6 yrs) for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{Cs} \times \text{SA} \times \text{SSAF} \times \text{DABS} \times \text{EV x EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
Cs	=	exposure point concentration in soil (mg/kg)
SA	=	surface area (cm^2)
SSAF	=	soil-to-skin adherence factor (mg/cm^2-event)
DABS	=	dermal absorption factor
EV	=	event frequency (event/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg\text{-}day)^{-1}$)
ADAF	=	age-dependent adjustment factor (unitless)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFd ($(mg/kg\text{-}day)^{-1}$) x ADAF

ASSUMPTIONS:		Age 0-<2	Age 2-<6		
Cs	=	1.822	1.822	mg/kg	Benzo(a)anthracene, Surface Soil, Risk Area E1
SA	=	2800	2800	cm^2	
SSAF	=	0.2	0.2	mg/cm^2-event	
DABS	=	0.13	0.13	unitless	Benzo(a)anthracene value
EV	=	1	1	event/day	
EF	=	156	156	days/year	
ED	=	2	4	years	
CF	=	1.0E-06	1.0E-06	kg/mg	
BW	=	15	15	kg	
ATc	=	25550	25550	days	
CSFd	=	7.3E-01	7.3E-01	$(mg/kg\text{-}day)^{-1}$	
ADAF	=	10	3	unitless	

TABLE E-9
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM DERMAL CONTACT WITH SOIL CURRENT/FUTURE CHILD RECREATIONAL VISITOR (0-6 YRS)		
BASED ON: EPA, 1989a; EPA, 2004; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

Intake (0-<2) = $\frac{\text{1.822 mg/kg x 2800 cm2 x 0.2 mg/cm2-event x 0.13 x 1 event/day x 156 days/year x 2 years x 0.000001 kg/mg}}{\text{15 kg x 25550 days}}$

Intake (0-<2) = 1.1E-07 mg/kg-day

ILCR (0-<2) = 1.1E-07 mg/kg-day x 0.73 (mg/kg-day)-1 x 10

ILCR (0-<2) = 7.9E-07

Intake (2-<6) = $\frac{\text{1.822 mg/kg x 2800 cm2 x 0.2 mg/cm2-event x 0.13 x 1 event/day x 156 days/year x 4 years x 0.000001 kg/mg}}{\text{15 kg x 25550 days}}$

Intake (2-<6) = 2.2E-07 mg/kg-day

ILCR (2-<6) = 2.2E-07 mg/kg-day x 0.73 (mg/kg-day)-1 x 3

ILCR (2-<6) = 4.7E-07

ILCR (0-6 yrs) = 7.9E-07 + 4.7E-07

ILCR (0-6 yrs) = 1.3E-06

TABLE E-10
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM INHALATION OF SOIL CURRENT/FUTURE DAYCARE CHILD (1-6 YRS)		
BASED ON: EPA, 1989a; EPA, 2009b; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

PURPOSE:

To estimate mutagenic COPC intake and cancer risks from inhalation of fugative dust and volatile emissions from surface soil by the current/future daycare child (1-6 yrs) for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{Cs} \times \text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{PEF} \times \text{AT}}$$

Where:

Intake	=	estimated exposure from air (µg/m^3)
CS	=	exposure point concentration in soil (mg/kg)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (µg/mg)
PEF	=	particulate emission factor from soil (m^3/kg)
AT	=	averaging time (hours)
URFi	=	inhalation unit risk factor ((µg/m^3)$^{-1}$)
ADAF	=	age-dependent adjustment factor (unitless)

RISKS:

ILCR (Carcinogens) = Intake (µg/m^3) x URFi ((µg/m^3)$^{-1}$) x ADAF

		Age			
ASSUMPTIONS:		1-<2	2-<6		
Cs	=	13.08	13.08	mg/kg	Chromium, Surface Soil, Risk Area E2
ET	=	8	8	hours/day	
EF	=	250	250	days/year	
ED	=	1	4	year(s)	
CF	=	1000	1000	µg/mg	
PEF	=	1.40E+09	1.40E+09	m^3/kg	
ATc	=	613200	613200	hours	
URFi	=	8.4E-02	8.4E-02	(µg/m3)$^{-1}$	
ADAF	=	10	3	unitless	

TABLE E-10
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM INHALATION OF SOIL CURRENT/FUTURE DAYCARE CHILD (1-6 YRS)		
BASED ON: EPA, 1989a; EPA, 2009b; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

Intake (0-<2) = $\frac{\text{13.08 mg/kg x 8 hours/day x 250 days/year x 1 year(s) x 1000 µg/mg}}{\text{1400000000 m3/kg x 613200 hours}}$

Intake (0-<2) = 3.0E-08 µg/m^3

ILCR (0-<2) = 3.0E-08 µg/m3 x 0.084 (µg/m3)-1 x 10

ILCR (0-<2) = 2.6E-08

Intake (2-<6) = $\frac{\text{13.08 mg/kg x 8 hours/day x 250 days/year x 4 year(s) x 1000 µg/mg}}{\text{1400000000 m3/kg x 613200 hours}}$

Intake (2-<6) = 1.2E-07 µg/m^3

ILCR (2-<6) = 1.2E-07 µg/m3 x 0.084 (µg/m3)-1 x 3

ILCR (2-<6) = 3.1E-08

ILCR (1-6 yrs) = 2.6E-08 + 3.1E-08

ILCR (1-6 yrs) = 5.7E-08

TABLE E-11
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT CURRENT/FUTURE ADOLESCENT TRESPASSER (6-16 YRS) - CANCER		
BASED ON: EPA, 1989a and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

PURPOSE: To estimate mutagenic COPC intake and cancer risks from incidental ingestion of sediment by the current/future adolescent trespasser (6-16 yrs) for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{CSd} \times \text{IR - Sd} \times \text{FI} \times \text{OABS} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
CSd	=	exposure point concentration in sediment (mg/kg)
IR-Sd	=	ingestion rate of sediment (mg/day)
FI	=	fraction ingested from contaminated source (unitless)
OABS	=	oral absorption factor (unitless)
CF	=	conversion factor (kg/mg)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(\text{mg/kg-day})^{-1}$)
ADAF	=	age-dependent adjustment factor (unitless)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFo ($(\text{mg/kg-day})^{-1}$) x ADAF

ASSUMPTIONS:		**Age** 6-<16		
CSd	=	3.3	mg/kg	Benzo(k)fluoranthene, Sediment, Risk Area J
IR-Sd	=	100	mg/day	
FI	=	1	unitless	
OABS	=	1	unitless	
CF	=	1.0E-06	kg/mg	
EF	=	18	days/year	
ED	=	10	years	
BW	=	39	kg	
AT	=	25550	days	
CSFo	=	7.3E-02	$(\text{mg/kg-day})^{-1}$	
ADAF	=	3	unitless	

TABLE E-11
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM INCIDENTAL INGESTION OF SEDIMENT CURRENT/FUTURE ADOLESCENT TRESPASSER (6-16 YRS) - CANCER		
BASED ON: EPA, 1989a and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

Intake (6-<16) = $\frac{\text{3.3 mg/kg x 100 mg/day x 1 x 1 x 0.000001 kg/mg x 18 days/year x 10 years}}{\text{39 kg x 25550 days}}$

Intake (6-<16) = 6.0E-08 mg/kg-day

ILCR (6-<16) = 6.0E-08 mg/kg-day x 0.073 (mg/kg-day)-1 x 3

ILCR (6-<16) = 1.3E-08

TABLE E-12
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT CURRENT/FUTURE ADOLESCENT TRESPASSER (6-16 YRS)		
BASED ON: EPA, 1989a; EPA, 2004; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

PURPOSE: To estimate mutagenic COPC intake and cancer risks from dermal contact with sediment by the current/future adolescent trespasser (6-16 yrs) for the Reasonable Maximum Exposure (RME).

EQUATION:

$$\text{Intake} = \frac{\text{CSd} \times \text{SA} \times \text{SSAF} \times \text{DABS} \times \text{EV x EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}}$$

Where:

Intake	=	estimated exposure intake (mg/kg-day)
CSd	=	exposure point concentration in sediment (mg/kg)
SA	=	surface area (cm^2)
SSAF	=	sediment-to-skin adherence factor (mg/cm^2-event)
DABS	=	dermal absorption factor
EV	=	event frequency (event/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
CF	=	conversion factor (kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg\text{-}day)^{-1}$)
ADAF	=	age-dependent adjustment factor (unitless)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFd ($(mg/kg\text{-}day)^{-1}$) x ADAF

ASSUMPTIONS:		**Age** 6-<16		
CSd	=	1.3	mg/kg	Dibenz(a,h)anthracene, Sediment, Risk Area J
SA	=	4184	cm^2	
SSAF	=	0.2	mg/cm^2-event	
DABS	=	0.13	unitless	Dibenz(a,h)anthracene value
EV	=	1	event/day	
EF	=	18	days/year	
ED	=	10	years	
CF	=	1.0E-06	kg/mg	
BW	=	39	kg	
ATc	=	25550	days	
CSFd	=	7.3E+00	$(mg/kg\text{-}day)^{-1}$	
ADAF	=	3	unitless	

TABLE E-12
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC COPC INTAKE/RISK FROM DERMAL CONTACT WITH SEDIMENT CURRENT/FUTURE ADOLESCENT TRESPASSER (6-16 YRS)		
BASED ON: EPA, 1989a; EPA, 2004; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

EXAMPLE CARCINOGENIC CALCULATION

Intake (6-<16) = $\frac{\text{1.3 mg/kg x 4184 cm2 x 0.2 mg/cm2-event x 0.13 x 1event/day x 18 days/year x 10 years x 0.000001 kg/mg}}{\text{39 kg x 25550 days}}$

Intake (6-<16) = 2.6E-08 mg/kg-day

ILCR (6-<16) = 2.6E-08 mg/kg-day x 7.3 (mg/kg-day)-1 x 3

ILCR (6-<16) = 5.6E-07

TABLE E-13
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER CURRENT/FUTURE ADOLESCENT TRESPASSER (6-16 YRS)		
BASED ON: EPA, 1989a; EPA, 2004; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

PURPOSE: To estimate mutagenic COPC intake and cancer risks from dermal contact with surface water by the current/future adolescent trespasser (6-16 yrs) for the Reasonable Maximum Exposure (RME).

EQUATION:

$$DAD = \frac{DA_{event} \times SA \times EV \times EF \times ED}{BW \times AT}$$

Where:

DAD = dermal absorbed dose (mg/kg-day)

DAevent = for organics:

Equations for DAevent for organics:

If tevent < t*

$$DA_{event} = 2FA \times Kp \times CW \times CF \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}}$$

If tevent > t*

$$DA_{event} = FA \times Kp \times CW \times CF \times \left[\frac{t_{event}}{1+B} + 2\tau_{event}\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

Equation for DAevent for inorganics:

DAevent = CW x Kp x t_{event} x CF

SA = surface area (cm^2)
EV = event frequency (events/day)
EF = exposure frequency (days/year)
ED = exposure duration (years)
BW = body weight (kg)
AT = averaging time (days)
CW = exposure point concentration in water (µg/L)
Kp = dermal permeability coefficients (cm/hr)
t_{event} = event time (hr/event)
CF = conversion factor (mg-L/µg-cm^3)
FA = fraction absorbed water (unitless)
t* = time to reach steady state (hour)
τ_{event} = lag time per event (hr/event)
B = ratio of permeability coefficient (unitless)
CSFd = dermal carcinogenic slope factor ((mg/kg-day)$^{-1}$)
ADAF = age-dependent adjustment factor (unitless)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg-day) x CSFd (mg/kg-day)-1 x ADAF

ASSUMPTIONS:		**Age** 6-<16		
DAevent	=	3.2E-07	mg/cm^2-event	calculated value
SA	=	4184	cm^2	
Cw	=	0.07	µg/L	Indeno(1,2,3-cd)pyrene, Surface Water, Risk Area J
EV	=	1	events/day	
EF	=	18	days/year	
ED	=	10	years	
BW	=	39	kg	
ATc	=	25550	days	
Kp	=	1	cm/hr	chemical-specific, indeno(1,2,3-cd)pyrene value
t_{event}	=	2	hr/event	
CF	=	1.0E-06	mg-L/µg-cm^3	
CSFd	=	0.73	(mg/kg-day)$^{-1}$	
ADAF	=	3	unitless	

TABLE E-13
SAMPLE CALCULATIONS
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CALCULATION WORKSHEET

SUBJECT: CALCULATION OF MUTAGENIC INTAKE/RISK FROM DERMAL CONTACT WITH SURFACE WATER CURRENT/FUTURE ADOLESCENT TRESPASSER (6-16 YRS)		
BASED ON: EPA, 1989a; EPA, 2004; and EPA, 2005		
BY: K. EARLY	**CHECKED BY:** F. SEVOLD	**DATE:** 03/31/11

DAD (6-<16) = $\frac{\text{3.2E-07 mg/cm2-event x 4184 cm2 x 1 events/day x 18 days/year x 10 years}}{\text{39 kg x 25550 days}}$

DAD (6-<16) = 2.4E-07 mg/kg-day

ILCR (6-<16) = 2.4E-07 mg/kg-day x 0.73 (mg/kg-day)-1 x 3

ILCR (6-<16) = 5.3E-07

APPENDIX F

TABLE F-1
REVISED GROUNDWATER SCREENING VALUES FOR PROTECTION OF THE VAPOR INTRUSION PATHWAY
SCOVILL INDUSTRIAL LANDFILL SITE, WATERBURY, CONNECTICUT

CAS No.	Chemical	Updated RfC (mg/m^3)	Updated URF ($\mu g/m^3$)$^{-1}$ [1]	"NEW" Target Indoor Air Concentration based on HQ = 0.1 (µg/m3)		"NEW" Target Indoor Air Concentration based on TR=1E-06 (µg/m3)	HLC (unitless)	"New" NC-based Target GW Concentration (µg/L)	"New" C-based Target GW Concentration (µg/L)	"NEW" Target GW Concentration	Basis
83-32-9	Acenaphthene			NA		NA	0.0075225	NA	NA	NA	
208-96-8	Acenaphthylene			NA		NA	0.004674	NA	NA	NA	
67-64-1	Acetone	31		3100		NA	0.0014309	2.17E+06	NA	2.17E+06	NC
98-86-2	Acetophenone			NA		NA	0.0004252	NA	NA	NA	
100-52-7	Benzaldehyde			NA		NA	0.0010916	NA	NA	NA	
71-43-2	Benzene	0.03	0.0000078	3		0.311965812	0.2269011	1.32E+01	1.37E+00	1.37E+00	C
75-15-0	Carbon disulfide	0.7		70		NA	0.5887163	1.19E+02	NA	1.19E+02	NC
56-23-5	Carbon tetrachloride	0.1	0.000006	10		0.405555556	1.1283729	8.86E+00	3.59E-01	3.59E-01	C
108-90-7	Chlorobenzene	0.05		5		NA	0.1271464	3.93E+01	NA	3.93E+01	NC
67-66-3	Chloroform	0.098	0.000023	9.8		0.105797101	0.1500409	6.53E+01	7.05E-01	7.05E-01	C
95-57-8	2-Chlorophenol			NA		NA	0.0004579	NA	NA	NA	
156-59-2	cis-1,2-Dichloroethylene			NA		NA	0.1668029	NA	NA	NA	
98-82-8	Cumene	0.4		40		NA	0.4701554	8.51E+01	NA	8.51E+01	NC
132-64-9	Dibenzofuran			NA		NA	0.0087081	NA	NA	NA	
95-50-1	1,2-Dichlorobenzene	0.2		20		NA	0.0784955	2.55E+02	NA	2.55E+02	NC
106-46-7	1,4-Dichlorobenzene	0.8	0.000011	80		0.221212121	0.0985282	8.12E+02	2.25E+00	2.25E+00	C
75-35-4	1,1-Dichloroethylene	0.2		20		NA	1.0670482	1.87E+01	NA	1.87E+01	NC
10061-01-5	cis1,3-Dichloropropene	0.02	0.000004	2		0.608333333	0.1451349	1.38E+01	4.19E+00	4.19E+00	C
60-57-1	Dieldrin		0.0046	NA		0.000528986	0.0004088	NA	1.29E+00	1.29E+00	C
100-41-4	Ethylbenzene	1	0.0000025	100		0.973333333	0.3221586	3.10E+02	3.02E+00	3.02E+00	C
86-73-7	Fluorene			NA		NA	0.003933	NA	NA	NA	
7439-97-6	Mercury (elemental)	0.0003		0.03		NA	0.467	6.42E-02	NA	6.42E-02	NC
79-20-9	Methyl acetate			NA		NA	0.0047016	NA	NA	NA	
74-87-3	Methyl chloride (chloromethane)	0.09		9		NA	0.3605887	2.50E+01	NA	2.50E+01	NC
75-09-2	Methylene chloride	1	0.00000047	100		5.177304965	0.13287	7.53E+02	3.90E+01	3.90E+01	C
78-93-3	Methylethylketone (2-butanone)	5		500		NA	0.0023262	2.15E+05	NA	2.15E+05	NC
1634-04-4	MTBE	3	0.00000026	300		9.358974359	0.0239984	1.25E+04	3.90E+02	3.90E+02	C
91-20-3	Naphthalene	0.003	0.000034	0.3		0.071568627	0.0179886	1.67E+01	3.98E+00	3.98E+00	C
108-38-3	m-Xylene	0.7		70		NA	0.2935405	2.38E+02	NA	2.38E+02	NC
95-47-6	o-xylene	0.7		70		NA	0.2117743	3.31E+02	NA	3.31E+02	NC
1330-20-7	xylenes, total	0.1		10		NA	0.2117743	4.72E+01	NA	4.72E+01	NC
129-00-0	Pyrene			NA		NA	0.0004865	NA	NA	NA	
127-18-4	Tetrachloroethylene	0.27	0.0000059	27		0.412429379	0.7236304	3.73E+01	5.70E-01	5.70E-01	C
108-88-3	Toluene	5		500		NA	0.2714636	1.84E+03	NA	1.84E+03	NC
156-60-5	trans-1,2-Dichloroethylene	0.06		6		NA	0.1668029	3.60E+01	NA	3.60E+01	NC
120-82-1	1,2,4-Trichlorobenzene	0.002		0.2		NA	0.058054	3.45E+00	NA	3.45E+00	NC
71-55-6	1,1,1-Trichloroethane	5		500		NA	0.7031889	7.11E+02	NA	7.11E+02	NC
79-01-6	Trichloroethylene ††	0.01	0.000002	1		1.216666667	0.4026983	2.48E+00	3.02E+00	2.48E+00	NC
95-63-6	1,2,4-Trimethylbenzene	0.007		0.7		NA	0.2518397	2.78E+00	NA	2.78E+00	NC
108-67-8	1,3,5-Trimethylbenzene			NA		NA	0.3585446	NA	NA	NA	
75-01-4	Vinyl chloride (chloroethene)[1]									1.45E-01	C
108-87-2	Methylcyclohexane [2]			NA		NA	#N/A	NA	NA	NA	
91-57-6	2-Methylnaphthalene [2]			NA		NA	0.0211774	NA	NA	NA	
57-12-5	Cyanide [3]			NA		NA	0.0054374	NA	NA	NA	
110-82-7	Cyclohexane [3]	6		600		NA	6.1324612	9.78E+01	NA	9.78E+01	NC
120-12-7	anthracene [3]			NA		NA	0.0022731	NA	NA	NA	
85-01-8	phenanthrene [3]			NA		NA	#N/A	NA	NA	NA	

RfC = reference concentration
URF - Inhalation Unit Risk Factor
HQ = Hazard Quotient
TR= Target Risk
HLC = Henry's Law Constant
NC = Non-Cancer
C= Cancer
GW = GroundWater

Target Indoor Air Concentration based on HQ = 0.1 ($\mu g/m^3$) = 0.1 x RfC (mg/m^3) x 1000 (µg/mg)
Target Indoor Air Concentration based on TR=1E-06 ($\mu g/m^3$) = (1E-6 x 25550 days) / (350 d/yr x 30 y x URF ($\mu g/m^3$)$^{-1}$)
Target GW Concentration (µg/L) = (Target Indoor Air Concentration ($\mu g/m^3$) x .001 m^3/L)/ (HLC x α) where α = 0.001
Where there is both a cancer risk and hazard quotient based target GW Concentration the lower of the two is selected as the Target GW concentration

(1) Early life exposure is accounted for in this target GW concentration provided by EPA Region 1, March 11, 2010.
(2) Toxicity values previously available are not currently listed in IRIS or the 2010 RSL Tables.
(3) Chemical not listed in 2002 Vapor Intrusion Guidance.

INDICATES VALUES HAVE BEEN CHANGED FROM MCLS TO RISK-BASED LEVELS (source: EPA Region I, March 11, 2010)

TABLE F-2
VAPOR INTRUSION EVALUATION - PARCEL A - SHALLOW GROUNDWATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CAS Number	Groundwater Chemical of Potential Concern	Units	Minimum Concentration	Arithmetic Mean (1)	Maximum Concentration	Frequency of Detection	Location of Maximum Concentration	Tier 1 Evaluation		Generic Target Groundwater Concentrations(3) ug/L				Tier 2 Evaluation
								Is Chemical Sufficiently Toxic?	Is Chemical Sufficiently Volatile? (2)	Cancer Risk = 10^{-4}	Cancer Risk = 10^{-5}	Cancer Risk = 10^{-6}	HI=0.1	Does Maximum Site Chemical Concentration exceed 10-6 Target Cancer Risk Level or HI of 1.0?
98-86-2	Acetophenone	µg/L	0.32	4.9	0.32	1/74	MW5	YES	YES	NA	NA	NA	W - 80,000	NO
100-52-7	Benzaldehyde	µg/L	0.86	4.9	0.86	1/74	MW5	YES	YES	NA	NA	NA	W - 36,000	NO
67-66-3	Chloroform	µg/L	0.40	3.8	1.7	2/95	MW8S	YES	YES	70.5	7.05	0.705	65.3	YES
95-57-8	2-Chlorophenol	µg/L	---	---	---	0/74	---	---	---	---	---	---	---	NO
57-12-5	Cyanide (total)	µg/L	1.5	9.3	8.7	9/72	MW11S	NA	NA	NA	NA	NA	NA	NO
132-64-9	Dibenzofuran	µg/L	0.19	4.8	0.37	3/74	MW11S	YES	YES	NA	NA	NA	NA	NO
156-59-2	cis-1,2-Dichloroethene	µg/L	0.20	4.8	35	12/95	P4	YES	YES	NA	NA	NA	W - 21	NO
79-20-9	Methyl acetate	µg/L	2.8	3.9	2.8	1/93	MW12S	YES	YES	NA	NA	NA	W - 72,000	NO
108-87-2	Methyl cyclohexane	µg/L	0.24	3.9	0.24	1/93	P2	NA	YES	NA	NA	NA	W - 71	NO
83-32-9	Acenaphthene	µg/L	0.10	4.6	11	12/74	MW6	YES	YES	NA	NA	NA	NA	NO
208-96-8	Acenaphthylene	µg/L	0.10	4.8	0.10	1/74	MW6	NA	YES	NA	NA	NA	NA	NO
120-12-7	Anthracene	µg/L	0.19	4.9	0.19	1/74	MW11S	NO	YES	---	---	---	---	NO
86-73-7	Fluorene	µg/L	0.10	4.3	1.3	10/74	MW6	YES	YES	NA	NA	NA	NA	NO
91-57-6	2-Methylnaphthalene	µg/L	5.0	4.9	5.0	1/74	MW6	YES	YES	NA	NA	NA	W - 330	NO
85-01-8	Phenanthrene	µg/L	0.10	4.7	1.1	5/74	MW11S	NA	YES	NA	NA	NA	NA	NO
129-00-0	Pyrene	µg/L	0.10	4.7	0.35	2/69	MW11S	YES	YES	NA	NA	NA	NA	NO
127-18-4	Tetrachloroethene	µg/L	0.14	3.7	0.46	3/96	MW8S	YES	YES	57	5.7	0.57	37.3	NO
79-01-6	Trichloroethene	µg/L	0.20	3.9	12	8/96	P4	YES	YES	302	30.2	3.02	2.48	YES
108-67-8	1,3,5-Trimethylbenzene	µg/L	0.30	0.40	0.30	1/2	MW6	YES	YES	NA	NA	NA	W - 28,000	NO
75-01-4	Vinyl chloride	µg/L	0.34	4.1	18	15/95	P4	YES	YES	14.5	1.45	0.145	NA	YES
7439-97-6	Mercury (Dissolved)	µg/L	0.026	0.19	0.12	6/70	MW12S	YES	YES	NA	NA	NA	0.064	YES

--- Indicates chemical was not detected in shallow groundwater or insufficiently toxic or volatile.

NA - Information not available in 2002 Vapor Intrusion Guidance (EPA, 2002).

(1) For some COPCs, because of inclusion of detection limits in the arithmetic mean concentrations, the arithmetic mean exceeds the maximum detected concentration.

(2) A chemical is sufficiently volatile if its Henry's Law Constant is 1 x 10-5 atm-m3/mol or greater. For chemicals not listed in Table 1 of OSWER's Draft Guidance for Evaluating the Vapor Intrusion Indoor Air Pathway from Groundwater and Soils (EPA, 2002a), the Hazardous Substances Database (HSBD, 2011) was used as the source of Henry's Law Constants.

(3) Generic target groundwater concentraions corresponding to Target Indoor Air Concentrations where the soil gas to indoor air attenuation factor = 0.001 and partitioning across the water table obeys Henry's Law. Source: OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from groundwater and soils (EPA, 2002), Tables 2a, 2b, 2c. Non-cancer based values have been adjusted to an HI=0.1. COPCs whose toxicity values have been updated since 2002 have been revised to reflect 2010 RSL toxicity values. Those whose 2002 Vapor Intrusion Guidance values were based on MCLs have been replaced by inhalation risk-based values (EPA Region 1, March 11, 2010). See Appendix F, Table F-1 for supporting documentation.

W - Withdrawn toxicity values were used to develop the 2002 Vapor Intrusion Guidance screening values, these 2002 values are provided (adjusted to an HI of 0.1).

TABLE F-3
VAPOR INTRUSION EVALUATION - PARCEL B - SHALLOW GROUNDWATER
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

CAS Number	Groundwater Chemical of Potential Concern	Units	Minimum Concentration	Arithmetic Mean (1)	Maximum Concentration	Frequency of Detection	Location of Maximum Concentration	Tier 1 Evaluation		Generic Target Groundwater Concentrations(3) ug/L				Tier 2 Evaluation
								Is Chemical Sufficiently Toxic?	Is Chemical Sufficiently Volatile? (2)	Cancer Risk = 10^{-4}	Cancer Risk = 10^{-5}	Cancer Risk = 10^{-6}	HI based value adjusted to HI=0.1	Does Maximum Site Chemical Concentration exceed 10-6 Target Cancer Risk Level or HI of 0.1?
98-86-2	Acetophenone	µg/L	---	---	---	0/9	---	---	---	---	---	---	---	NO
100-52-7	Benzaldehyde	µg/L	---	---	---	0/9	---	---	---	---	---	---	---	NO
67-66-3	Chloroform	µg/L	---	---	---	0/29	---	---	---	---	---	---	---	NO
57-12-5	Cyanide (total)	µg/L	4.3	12	32	8/9	MW3	NA	NA	NA	NA	NA	NA	NO
132-64-9	Dibenzofuran	µg/L	5.0	5.1	5.0	1/9	MW3	YES	YES	NA	NA	NA	NA	NO
156-59-2	cis-1,2-Dichloroethene	µg/L	0.20	3.1	1.2	12/29	P21	YES	YES	NA	NA	NA	W - 21	NO
83-32-9	Acenaphthene	µg/L	0.10	2.6	1.3	4/9	MW3	YES	YES	NA	NA	NA	NA	NO
208-96-8	Acenaphthylene	µg/L	0.080	4.5	0.080	1/9	MW3	NA	YES	NA	NA	NA	NA	NO
120-12-7	Anthracene	µg/L	0.30	4.5	0.30	1/9	MW3	NO	YES	---	---	---	---	NO
86-73-7	Fluorene	µg/L	0.23	3.4	0.50	2/9	MW3	YES	YES	NA	NA	NA	NA	NO
91-57-6	2-Methylnaphthalene	µg/L	0.20	4.5	0.20	1/9	MW3	YES	YES	NA	NA	NA	NA	NO
85-01-8	Phenanthrene	µg/L	0.40	4.5	0.40	1/9	MW3	NA	YES	NA	NA	NA	NA	NO
129-00-0	Pyrene	µg/L	0.10	4.4	0.10	1/8	MW3	YES	YES	NA	NA	NA	NA	NO
108-67-8	1,3,5-Trimethylbenzene	µg/L	0.30	0.30	0.30	1/1	MW3	YES	YES	NA	NA	NA	W - 28,000	NO
75-01-4	Vinyl chloride	µg/L	0.50	4.0	3.7	10/29	P40	YES	YES	14.5	1.45	0.145	NA	YES
7439-97-6	Mercury	µg/L	0.088	0.19	0.088	1/9	MW3	YES	YES	NA	NA	NA	0.064	YES

--- Indicates chemical was not detected in shallow groundwater or insufficiently toxic or volatile.

NA - Information not available in 2002 Vapor Intrusion Guidance (EPA, 2002).

HI - Hazard Index

(1) For some COPCs, because of inclusion of detection limits in the arithmetic mean concentrations, the arithmetic mean exceeds the maximum detected concentration.

(2) A chemical is sufficiently volatile if its Henry's Law Constant is 1 x 10-5 atm-m3/mol or greater. For chemicals not listed in Table 1 of OSWER's Draft Guidance for Evaluating the Vapor Intrusion Indoor Air Pathway from Groundwater and Soils (EPA, 2002a), the Hazardous Substances Database (HSBD, 2011) was used as the source of Henry's Law Constants.

(3) Generic target groundwater concentraions corresponding to Target Indoor Air Concentrations where the soil gas to indoor air attenuation factor = 0.001 and partitioning across the water table obeys Henry's Law. Source: OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from groundwater and soils (EPA, 2002), Tables 2a, 2b, 2c. Non-cancer based values have been adjusted to an HI=0.1. COPCs whose toxicity values have been updated since 2002 have been revised to reflect 2010 RSL toxicity values. Those whose 2002 Vapor Intrusion Guidance values were based on MCLs have been replaced by inhalation risk-based values (EPA Region 1, March 11, 2010). See Appendix F, Table F-1 for supporting documentation.

W - Withdrawn toxicity values were used to develop the 2002 Vapor Intrusion Guidance screening values, these 2002 values are provided (adjusted to an HI of 0.1).

APPENDIX G

Table G-1

Calculation of the Construction Worker Particulate Emission Factor

$$PEF\ (m^3/kg) = Q/C_{sr}\ x\ \frac{1}{F_D}\ x \left[\frac{T\ x\ A_R}{556\ x\ (W/3)^{0.4}\ x\ \frac{(365\ d/yr\ -\ p)}{365 d/yr}\ x \sum VKT} \right]$$

Where:			RME	CTE
PEF	=	Particulate emission factor (m^3/kg).	1.4E+06	1.4E+06
Q/C_{sr}	=	Inverse of 1-h average air concentration along a straight road segment bisecting a 0.5-acre square site (g/m^2-s per kg/m^3).	23.02 (EPA, 2002c)	
F_D	=	Dispersion correction factor (unitless).	0.185 (EPA, 2002c)	
T	=	Total time over which construction occurs (s).	3.74E+06[a]	7.49E+05[a]
A_R	=	Surface area of contaminated road segment (m^2).	274.213 (EPA, 2002c)	
W	=	Mean vehicle weight (tons).	8[b]	
p	=	Number of days with at least 0.01 inches of precipitation (days/yr).	130[c]	
VKT	=	Sum of fleet vehicle kilometers traveled during the exposure duration (km).	175.5[d]	35.1[d]

[a] RME assumes exposure of 130 days/year for 8 hours/day; CTE assumes exposure of 26 days/year for 8 hours/day.
[b] W = ((20 cars x 2 tons/car) + (10 trucks x 20 tons/truck))/30 vehicles.
[c] Based on Figure 5-2 of EPA, 2002c.
[d] RME VKT = 30 vehicles x 0.045 km/day x 26 wks/year x 5 days/wk; CTE VKT = 30 vehicles x 0.045 km/day x 26 wks/year x 1 day/wk.

Table G-2

Calculation of the Volatilization Factors

$$VF\,(m^3/kg) = Q/C_{vol} \times \frac{(3.14 \times D_A \times T)^{1/2}}{2 \times \rho b \times D_A} \times 0.0001\ m^2/cm^2$$

Where:

$$D_A\ (cm^2/sec) = \frac{\left[\left(\theta_a^{10/3} \times D_i \times H'\right) + \left(\theta_w^{10/3} \times D_w\right)\right]/n^2}{\left(\rho b \times K_d\right) + \theta_w + \left(\theta_a \times H'\right)}$$

Where:		**RME**	**CTE**
VF	= Soil-to-air volatilization factor (m^3/kg).	See Table G-3	See Table G-4
Q/C_{vol}	= Inverse air concentration at center of source (g/m^2-s per kg/m^3).	68.18 (EPA, 2002c)	
D_A	= Apparent diffusivity (cm^2/sec).	See Table G-5	
T	= Exposure interval (sec). Estimated based on exposure duration.	Resident – 9.46E+08 Construction Worker – 3.15E+07 Commercial/Industrial Worker – 7.88E+08 Groundskeeper – 7.88E+08 Child Recreational Visitor – 1.89E+08 Trespasser – 3.15E+08 Daycare child – 1.58E+08	Resident – 9.46E+08 Construction Worker – 3.15E+07 Commercial/Industrial Worker – 2.84E+08 Groundskeeper – 2.84E+08 Child Recreational Visitor – 6.31E+07 Trespasser – 3.15E+08 Daycare child – 6.31E+07
ρb	= Dry soil bulk density (g/cm^3).	1.5 (EPA, 2002c)	
θ_a	= Air-filled soil porosity (L_{air}/L_{soil}).	0.28 (EPA, 2002c)	
D_i	= Diffusivity in air (cm^2/sec).	See Table G-5	
H'	= Dimensionless Henry's Law Constant (unitless).	See Table G-5	
θ_w	= Water-filled soil porosity (L_{water}/L_{soil}).	0.15 (EPA, 2002c)	
D_w	= Diffusivity in water (cm^2/sec).	See Table G-5	
n	= Total soil porosity(L_{pore}/L_{soil}).	0.43 (EPA, 2002c)	
K_d	= Soil-water partition coefficient (cm^3/g).	See Table G-5	

Table G-3
Volatilization Factors for Volatile Soil COPCs-RME
Scovill Industrial Landfill Site
Waterbury, Connecticut

CAS Number	COPC	Residents VF (kg/m^3)	Construction Worker VF (kg/m^3)	Commercial/Industrial Worker VF (kg/m^3)	Groundskeeper VF (kg/m^3)	Child Recreational Visitor VF (kg/m^3)	Trespasser VF (kg/m^3)	Daycare Child VF (kg/m^3)
71-43-2	Benzene	3.96E+04	7.22E+03	3.61E+04	3.61E+04	1.77E+04	2.28E+04	1.62E+04
111-44-4	bis(2-Chloroethyl)ether	4.51E+04	8.24E+03	4.12E+04	4.12E+04	2.02E+04	2.60E+04	1.84E+04
91-20-3	Naphthalene	4.52E+04	8.25E+03	4.13E+04	4.13E+04	2.02E+04	2.61E+04	1.85E+04
127-18-4	Tetrachloroethene	4.33E+04	7.89E+03	3.95E+04	3.95E+04	1.93E+04	2.50E+04	1.77E+04
79-01-6	Trichloroethene	4.11E+04	7.49E+03	3.75E+04	3.75E+04	1.84E+04	2.37E+04	1.68E+04
75-01-4	Vinyl chloride	3.53E+04	6.45E+03	3.22E+04	3.22E+04	1.58E+04	2.04E+04	1.44E+04

Table G-4
Volatilization Factors for Volatile Soil COPCs-CTE
Scovill Industrial Landfill Site
Waterbury, Connecticut

CAS Number	COPC	Residents VF (kg/m^3)	Construction/Utility Worker VF (kg/m^3)	Commercial/Industrial Worker VF (kg/m^3)	Groundskeeper VF (kg/m^3)	Child Recreational Visitor VF (kg/m^3)	Trespasser VF (kg/m^3)	Daycare Child VF (kg/m^3)
71-43-2	Benzene	3.96E+04	7.22E+03	2.17E+04	2.17E+04	1.02E+04	7.22E+03	1.02E+04
111-44-4	bis(2-Chloroethyl)ether	4.51E+04	8.24E+03	2.47E+04	2.47E+04	1.17E+04	8.24E+03	1.17E+04
91-20-3	Naphthalene	4.52E+04	8.25E+03	2.48E+04	2.48E+04	1.17E+04	8.25E+03	1.17E+04
127-18-4	Tetrachloroethene	4.33E+04	7.89E+03	2.37E+04	2.37E+04	1.12E+04	7.89E+03	1.12E+04
79-01-6	Trichloroethene	4.11E+04	7.49E+03	2.25E+04	2.25E+04	1.06E+04	7.49E+03	1.06E+04
75-01-4	Vinyl chloride	3.53E+04	6.45E+03	1.94E+04	1.94E+04	9.12E+03	6.45E+03	9.12E+03

Table G-5
Calculation of Apparent Diffusivity for Volatile Soil COPCs
Scovill Industrial Landfill Site
Waterbury, Connecticut

CAS Number	COPC	D_i Diffusion Coefficient in Air [a] (cm^2/sec)	H' Dimensionless Henry's Law Constant [a] (unitless)	D_w Diffusion Coefficient in Water [a] (cm^2/sec)	K_d Soil-Water Partition Coefficient [a] (cm^3/g)	D_A Apparent Diffusivity (cm^2/sec)
71-43-2	Benzene	8.80E-02	2.28E-01	9.80E-06	3.53E-01	2.09E-03
111-44-4	bis(2-Chloroethyl)ether	6.92E-02	7.38E-04	7.53E-06	9.30E-02	1.39E-05
91-20-3	Naphthalene	5.90E-02	1.98E-02	7.50E-06	1.20E+01	5.00E-06
127-18-4	Tetrachloroethene	7.20E-02	7.54E-01	8.20E-06	9.30E-01	2.40E-03
79-01-6	Trichloroethene	7.90E-02	4.22E-01	9.10E-06	9.96E-01	1.47E-03
75-01-4	Vinyl chloride	1.06E-01	1.11E+00	1.23E-05	1.12E-01	1.45E-02

[a]EPA, 2002b

APPENDIX H

Table H-1
Dermal Absorption Factors for Soil Exposure
Scovill Industrial Landfill Site
Waterbury, Connecticut

COPC	Dermal Absorption Factor* (unitless)
Benzene	NA
bis(2-Chloroethyl)ether	NA
4-Bromophenyl phenyl ether	0.1
n-Butylbenzene	NA
sec-Butylbenzene	NA
4-Chlorophenyl phenyl ether	0.1
Cymene	NA
Dibenzofuran	NA
Dieldrin	0.1
Dimethyl phthalate	0.1
Di-n-octyl phthalate	0.1
Dioxins/Furans	
2,3,7,8-TCDD TEQ	0.03
Hexachlorobenzene	0.1
N-Nitrosodi-n-propylamine	0.1
PAHs	
Benzo(a)anthracene	0.13
Benzo(a)pyrene	0.13
Benzo(b)fluoranthene	0.13
Benzo(g,h,i)perylene	0.13
Benzo(k)fluoranthene	0.13
Carbazole	0.13
Chrysene	0.13
Dibenz(a,h)anthracene	0.13
Indeno(1,2,3-c,d)pyrene	0.13
Naphthalene	NA
PCBs	
Aroclor-1254	0.14
Aroclor-1260	0.14
Tetrachloroethylene	NA
Trichloroethylene	NA
Vinyl chloride	NA
Metals	
Aluminum	NA
Antimony	NA
Arsenic	0.03
Barium	NA
Cadmium	0.001
Chromium	NA
Cobalt	NA
Iron	NA
Lead	NA
Manganese	NA
Mercury	NA
Nickel	NA
Silver	NA
Thallium	NA
Vanadium	NA
Zinc	NA

* Exhibit 3-4, Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, Part E – Supplemental Guidance for Dermal Risk Assessment (EPA, 2004).

NA = Not available

TABLE H-2
DERMALLY ABSORBED DOSE PER EVENT (DA_{event}) CALCULATIONS[a] - RME
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

COPC	EPC[b] (µg/L)	EPC[b] (mg/cm^3)	FA (unitless)	K_p (cm/hr)	τ_{event} (hr/event)	B (unitless)	t^* (hr)	DA_{event} (mg/cm^2-event)[c] Adolescent
PAHs								
Benzo(a)anthracene	6.00E-02	6.00E-08	1.0	4.70E-01	2.03E+00	2.80E+00	8.53E+00	1.57E-07
Benzo(a)pyrene	7.00E-02	7.00E-08	1.0	7.00E-01	2.69E+00	4.30E+00	1.17E+01	3.14E-07
Benzo(b)fluoranthene	1.10E-01	1.10E-07	1.0	7.00E-01	2.77E+00	4.30E+00	1.20E+01	5.01E-07
Indeno(1,2,3-cd)pyrene	7.00E-02	7.00E-08	0.6	1.00E+00	3.78E+00	6.70E+00	1.68E+01	3.19E-07
Metals								
Arsenic	1.41E+00	1.41E-06	NA	1.00E-03	NA	NA	NA	2.82E-09
Cadmium	2.34E+00	2.34E-06	NA	1.00E-03	NA	NA	NA	4.68E-09
Chromium Total	2.16E+01	2.16E-05	NA	2.00E-03	NA	NA	NA	8.64E-08
Cobalt	3.10E+00	3.10E-06	NA	1.00E-03	NA	NA	NA	6.20E-09
Iron	4.71E+04	4.71E-02	NA	1.00E-03	NA	NA	NA	9.42E-05
Lead	3.53E+01	3.53E-05	NA	1.00E-03	NA	NA	NA	7.06E-08
Manganese	1.02E+03	1.02E-03	NA	1.00E-03	NA	NA	NA	2.04E-06
Mercury	3.30E-01	3.30E-07	NA	1.00E-03	NA	NA	NA	6.60E-10
Vanadium	2.62E+01	2.62E-05	NA	1.00E-03	NA	NA	NA	5.24E-08

[a] EPA, 2004 - EPA's Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment)

[b] See Appendix A, Table A-3.4

[c] Calculated based on Equation 3.2 or 3.3 for organics and Equation 3.4 for inorganics in EPA, 2004 where t_{event} equals 2.0 for adolescents.

B = Ratio of the permeability coefficient of a COPC through the stratum corneum relative to its permeability coefficient across the viable epidermis.

FA = Fraction absorbed.

K_p = Dermal permeability coefficient.

NA = Not applicable.

τ_{event} = Lag time per event.

t^* = Time to reach steady-state.

TABLE H-3

DERMALLY ABSORBED DOSE PER EVENT (DA_{event}) CALCULATIONS[a] - CTE
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

COPC	EPC[b] (µg/L)	EPC[b] (mg/cm^3)	FA (unitless)	K_p (cm/hr)	τ_{event} (hr/event)	B (unitless)	t^* (hr)	DA_{event} (mg/cm^2-event)[c] Adolescent
PAHs								
Benzo(a)anthracene	6.00E-02	6.00E-08	1.0	4.70E-01	2.03E+00	2.80E+00	8.53E+00	1.11E-07
Benzo(a)pyrene	7.00E-02	7.00E-08	1.0	7.00E-01	2.69E+00	4.30E+00	1.17E+01	2.22E-07
Benzo(b)fluoranthene	1.10E-01	1.10E-07	1.0	7.00E-01	2.77E+00	4.30E+00	1.20E+01	3.54E-07
Indeno(1,2,3-cd)pyrene	7.00E-02	7.00E-08	0.6	1.00E+00	3.78E+00	6.70E+00	1.68E+01	2.26E-07
Metals								
Arsenic	1.41E+00	1.41E-06	NA	1.00E-03	NA	NA	NA	1.41E-09
Cadmium	2.34E+00	2.34E-06	NA	1.00E-03	NA	NA	NA	2.34E-09
Chromium Total	2.16E+01	2.16E-05	NA	2.00E-03	NA	NA	NA	4.32E-08
Cobalt	3.10E+00	3.10E-06	NA	1.00E-03	NA	NA	NA	3.10E-09
Iron	4.71E+04	4.71E-02	NA	1.00E-03	NA	NA	NA	4.71E-05
Lead	3.53E+01	3.53E-05	NA	1.00E-03	NA	NA	NA	3.53E-08
Manganese	1.02E+03	1.02E-03	NA	1.00E-03	NA	NA	NA	1.02E-06
Mercury	3.30E-01	3.30E-07	NA	1.00E-03	NA	NA	NA	3.30E-10
Vanadium	2.62E+01	2.62E-05	NA	1.00E-03	NA	NA	NA	2.62E-08

[a] EPA, 2004 - EPA's Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment)

[b] See Appendix A, Table A-3.4

[c] Calculated based on Equation 3.2 or 3.3 for organics and Equation 3.4 for inorganics in EPA, 2004 where t_{event} equals 1.0 for adolescents.

B = Ratio of the permeability coefficient of a COPC through the stratum corneum relative to its permeability coefficient across the viable epidermis.

FA = Fraction absorbed.

K_p = Dermal permeability coefficient.

NA = Not applicable.

τ_{event} = Lag time per event.

t^* = Time to reach steady-state.

APPENDIX I

TABLE I-1
ESTIMATED ORDERS OF POTENTIAL POTENCY FOR CARCINOGENIC PAHs*
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Chemical	Weight-of-Evidence	Order of Potential Potency
Benzo(a)anthracene	B2	0.1
Benzo(b)fluoranthene	B2	0.1
Benzo(k)fluoranthene	B2	0.01
Benzo(a)pyrene	B2	1.0
Chrysene	B2	0.001
Dibenz(a,h)anthracene	B2	1.0
Indeno(1,2,3-cd)pyrene	B2	0.1

* EPA, 1993; EPA Region I, 1994a.

APPENDIX J

Table J-1
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1d1			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	7.9E-01	7.3E-01	2.1E-06	1.3E-06	3.4E-07	1.6E-07
Benzo(a)pyrene	9.2E-01	7.3E+00	2.4E-05	1.5E-05	3.9E-06	1.8E-06
Benzo(b)fluoranthene	1.2E+00	7.3E-01	3.3E-06	2.0E-06	5.3E-07	2.5E-07
Benzo(k)fluoranthene	1.0E+00	7.3E-02	2.7E-07	1.6E-07	4.3E-08	2.0E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	8.7E-06	5.2E-06	1.4E-06	6.5E-07
Indeno(1,2,3-cd)pyrene	9.0E-01	7.3E-01	2.4E-06	1.4E-06	3.9E-07	1.8E-07
Chromium Total	1.5E+01	5.0E-01	2.8E-05	1.7E-05	4.5E-06	2.1E-06

Table J-1
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1d1			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	7.9E-01	7.3E-01	0.13	7.7E-07	4.6E-07	1.8E-07	8.2E-08
Benzo(a)pyrene	9.2E-01	7.3E+00	0.13	8.9E-06	5.3E-06	2.0E-06	9.5E-07
Benzo(b)fluoranthene	1.2E+00	7.3E-01	0.13	1.2E-06	7.2E-07	2.7E-07	1.3E-07
Benzo(k)fluoranthene	1.0E+00	7.3E-02	0.13	9.7E-08	5.8E-08	2.2E-08	1.0E-08
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	0.13	3.2E-06	1.9E-06	7.2E-07	3.4E-07
Indeno(1,2,3-cd)pyrene	9.0E-01	7.3E-01	0.13	8.8E-07	5.3E-07	2.0E-07	9.4E-08
Chromium Total	1.5E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-1
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1d1			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	7.9E-01	1.1E-04	1.7E-11	1.0E-11	2.6E-11	1.2E-11
Benzo(a)pyrene	9.2E-01	1.1E-03	2.0E-10	1.2E-10	3.0E-10	1.4E-10
Benzo(b)fluoranthene	1.2E+00	1.1E-04	2.6E-11	1.6E-11	4.0E-11	1.9E-11
Benzo(k)fluoranthene	1.0E+00	1.1E-04	2.2E-11	1.3E-11	3.2E-11	1.5E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.3E-01	1.2E-03	7.7E-11	4.6E-11	1.1E-10	5.4E-11
Indeno(1,2,3-cd)pyrene	9.0E-01	1.1E-04	1.9E-11	1.2E-11	2.9E-11	1.4E-11
Chromium Total	1.5E+01	8.4E-02	2.5E-07	1.5E-07	3.7E-07	1.7E-07

Table J-1
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	3.4E-06	1.2E-06	2.7E-11	**4.6E-06**	5.0E-07	2.6E-07	3.8E-11	**7.6E-07**	**5.4E-06**
Benzo(a)pyrene	3.9E-05	1.4E-05	3.2E-10	**5.3E-05**	5.8E-06	3.0E-06	4.3E-10	**8.8E-06**	**6.2E-05**
Benzo(b)fluoranthene	5.2E-06	1.9E-06	4.2E-11	**7.2E-06**	7.7E-07	4.0E-07	5.8E-11	**1.2E-06**	**8.3E-06**
Benzo(k)fluoranthene	4.3E-07	1.6E-07	3.5E-11	**5.8E-07**	6.3E-08	3.3E-08	4.8E-11	**9.6E-08**	**6.8E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	1.4E-05	5.1E-06	1.2E-10	**1.9E-05**	2.0E-06	1.1E-06	1.7E-10	**3.1E-06**	**2.2E-05**
Indeno(1,2,3-cd)pyrene	3.9E-06	1.4E-06	3.1E-11	**5.3E-06**	5.7E-07	2.9E-07	4.3E-11	**8.6E-07**	**6.1E-06**
Chromium Total	4.4E-05	NA	4.0E-07	**4.5E-05**	6.5E-06	NA	5.5E-07	**7.1E-06**	**5.2E-05**

Table J-2
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2d1			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	5.6E-01	7.3E-01	1.5E-06	8.9E-07	2.4E-07	1.1E-07
Benzo(a)pyrene	8.8E-01	7.3E+00	2.3E-05	1.4E-05	3.8E-06	1.8E-06
Benzo(b)fluoranthene	1.1E+00	7.3E-01	3.0E-06	1.8E-06	4.8E-07	2.3E-07
Benzo(k)fluoranthene	8.7E-01	7.3E-02	2.3E-07	1.4E-07	3.7E-08	1.7E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	4.7E-06	2.8E-06	7.5E-07	3.5E-07
Indeno(1,2,3-cd)pyrene	7.1E-01	7.3E-01	1.9E-06	1.1E-06	3.0E-07	1.4E-07
Chromium Total	1.5E+01	5.0E-01	2.7E-05	1.6E-05	4.3E-06	2.0E-06

Table J-2
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2d1			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	5.6E-01	7.3E-01	0.13	5.4E-07	3.2E-07	1.2E-07	5.8E-08
Benzo(a)pyrene	8.8E-01	7.3E+00	0.13	8.5E-06	5.1E-06	1.9E-06	9.1E-07
Benzo(b)fluoranthene	1.1E+00	7.3E-01	0.13	1.1E-06	6.6E-07	2.5E-07	1.2E-07
Benzo(k)fluoranthene	8.7E-01	7.3E-02	0.13	8.5E-08	5.1E-08	1.9E-08	9.0E-09
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	1.7E-06	1.0E-06	3.9E-07	1.8E-07
Indeno(1,2,3-cd)pyrene	7.1E-01	7.3E-01	0.13	6.9E-07	4.1E-07	1.6E-07	7.4E-08
Chromium Total	1.5E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-2
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2d1			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	5.6E-01	1.1E-04	1.2E-11	7.2E-12	1.8E-11	8.4E-12
Benzo(a)pyrene	8.8E-01	1.1E-03	1.9E-10	1.1E-10	2.8E-10	1.3E-10
Benzo(b)fluoranthene	1.1E+00	1.1E-04	2.4E-11	1.5E-11	3.6E-11	1.7E-11
Benzo(k)fluoranthene	8.7E-01	1.1E-04	1.9E-11	1.1E-11	2.8E-11	1.3E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	4.1E-11	2.5E-11	6.2E-11	2.9E-11
Indeno(1,2,3-cd)pyrene	7.1E-01	1.1E-04	1.5E-11	9.2E-12	2.3E-11	1.1E-11
Chromium Total	1.5E+01	8.4E-02	2.4E-07	1.5E-07	3.6E-07	1.7E-07

Table J-2
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.4E-06	8.7E-07	1.9E-11	**3.2E-06**	3.5E-07	1.8E-07	2.6E-11	**5.3E-07**	**3.8E-06**
Benzo(a)pyrene	3.7E-05	1.4E-05	3.0E-10	**5.1E-05**	5.5E-06	2.9E-06	4.1E-10	**8.4E-06**	**5.9E-05**
Benzo(b)fluoranthene	4.8E-06	1.8E-06	3.9E-11	**6.6E-06**	7.1E-07	3.7E-07	5.4E-11	**1.1E-06**	**7.7E-06**
Benzo(k)fluoranthene	3.7E-07	1.4E-07	3.0E-11	**5.1E-07**	5.5E-08	2.8E-08	4.1E-11	**8.3E-08**	**5.9E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	7.5E-06	2.7E-06	6.6E-11	**1.0E-05**	1.1E-06	5.7E-07	9.0E-11	**1.7E-06**	**1.2E-05**
Indeno(1,2,3-cd)pyrene	3.0E-06	1.1E-06	2.4E-11	**4.1E-06**	4.5E-07	2.3E-07	3.4E-11	**6.8E-07**	**4.8E-06**
Chromium Total	4.3E-05	NA	3.9E-07	**4.3E-05**	6.3E-06	NA	5.3E-07	**6.9E-06**	**5.0E-05**

Table J-3
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1d1	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	7.9E-01	7.3E-01	1.1E-06	1.2E-07
Benzo(a)pyrene	9.2E-01	7.3E+00	1.2E-05	1.4E-06
Benzo(b)fluoranthene	1.2E+00	7.3E-01	1.6E-06	1.8E-07
Benzo(k)fluoranthene	1.0E+00	7.3E-02	1.3E-07	1.5E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	4.3E-06	4.9E-07
Indeno(1,2,3-cd)pyrene	9.0E-01	7.3E-01	1.2E-06	1.4E-07
Chromium Total	1.5E+01	5.0E-01	1.4E-05	1.6E-06

Table J-3
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1d1	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	7.9E-01	7.3E-01	0.13	1.5E-07	1.8E-08
Benzo(a)pyrene	9.2E-01	7.3E+00	0.13	1.8E-06	2.0E-07
Benzo(b)fluoranthene	1.2E+00	7.3E-01	0.13	2.4E-07	2.7E-08
Benzo(k)fluoranthene	1.0E+00	7.3E-02	0.13	1.9E-08	2.2E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	0.13	6.3E-07	7.2E-08
Indeno(1,2,3-cd)pyrene	9.0E-01	7.3E-01	0.13	1.8E-07	2.0E-08
Chromium Total	1.5E+01	1.3E-02	NA	NA	NA

Table J-3
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1d1	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	7.9E-01	1.1E-04	1.7E-11	1.8E-11
Benzo(a)pyrene	9.2E-01	1.1E-03	2.0E-10	2.1E-10
Benzo(b)fluoranthene	1.2E+00	1.1E-04	2.6E-11	2.8E-11
Benzo(k)fluoranthene	1.0E+00	1.1E-04	2.2E-11	2.3E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	3.3E-01	1.2E-03	7.7E-11	8.0E-11
Indeno(1,2,3-cd)pyrene	9.0E-01	1.1E-04	1.9E-11	2.0E-11
Chromium Total	1.5E+01	8.4E-02	2.5E-07	2.6E-07

Table J-3
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	Cancer Risks
Benzo(a)anthracene	1.1E-06	1.5E-07	1.7E-11	**1.2E-06**	1.2E-07	1.8E-08	1.8E-11	**1.4E-07**	**1.3E-06**
Benzo(a)pyrene	1.2E-05	1.8E-06	2.0E-10	**1.4E-05**	1.4E-06	2.0E-07	2.1E-10	**1.6E-06**	**1.6E-05**
Benzo(b)fluoranthene	1.6E-06	2.4E-07	2.6E-11	**1.9E-06**	1.8E-07	2.7E-08	2.8E-11	**2.1E-07**	**2.1E-06**
Benzo(k)fluoranthene	1.3E-07	1.9E-08	2.2E-11	**1.5E-07**	1.5E-08	2.2E-09	2.3E-11	**1.7E-08**	**1.7E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	4.3E-06	6.3E-07	7.7E-11	**5.0E-06**	4.9E-07	7.2E-08	8.0E-11	**5.6E-07**	**5.5E-06**
Indeno(1,2,3-cd)pyrene	1.2E-06	1.8E-07	1.9E-11	**1.4E-06**	1.4E-07	2.0E-08	2.0E-11	**1.6E-07**	**1.5E-06**
Chromium Total	1.4E-05	NA	2.5E-07	**1.4E-05**	1.6E-06	NA	2.6E-07	**1.8E-06**	**1.6E-05**

Table J-4
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2d1	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	5.6E-01	7.3E-01	7.4E-07	8.4E-08
Benzo(a)pyrene	8.8E-01	7.3E+00	1.2E-05	1.3E-06
Benzo(b)fluoranthene	1.1E+00	7.3E-01	1.5E-06	1.7E-07
Benzo(k)fluoranthene	8.7E-01	7.3E-02	1.2E-07	1.3E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	2.3E-06	2.6E-07
Indeno(1,2,3-cd)pyrene	7.1E-01	7.3E-01	9.5E-07	1.1E-07
Chromium Total	1.5E+01	5.0E-01	1.3E-05	1.5E-06

Table J-4
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2d1	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	5.6E-01	7.3E-01	0.13	1.1E-07	1.2E-08
Benzo(a)pyrene	8.8E-01	7.3E+00	0.13	1.7E-06	1.9E-07
Benzo(b)fluoranthene	1.1E+00	7.3E-01	0.13	2.2E-07	2.5E-08
Benzo(k)fluoranthene	8.7E-01	7.3E-02	0.13	1.7E-08	1.9E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	3.4E-07	3.9E-08
Indeno(1,2,3-cd)pyrene	7.1E-01	7.3E-01	0.13	1.4E-07	1.6E-08
Chromium Total	1.5E+01	1.3E-02	NA	NA	NA

Table J-4
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2d1	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	5.6E-01	1.1E-04	1.2E-11	1.3E-11
Benzo(a)pyrene	8.8E-01	1.1E-03	1.9E-10	2.0E-10
Benzo(b)fluoranthene	1.1E+00	1.1E-04	2.4E-11	2.6E-11
Benzo(k)fluoranthene	8.7E-01	1.1E-04	1.9E-11	2.0E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	4.1E-11	4.3E-11
Indeno(1,2,3-cd)pyrene	7.1E-01	1.1E-04	1.5E-11	1.6E-11
Chromium Total	1.5E+01	8.4E-02	2.4E-07	2.5E-07

Table J-4
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area D1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	7.4E-07	1.1E-07	1.2E-11	**8.5E-07**	8.4E-08	1.2E-08	1.3E-11	**9.6E-08**	**9.5E-07**
Benzo(a)pyrene	1.2E-05	1.7E-06	1.9E-10	**1.3E-05**	1.3E-06	1.9E-07	2.0E-10	**1.5E-06**	**1.5E-05**
Benzo(b)fluoranthene	1.5E-06	2.2E-07	2.4E-11	**1.7E-06**	1.7E-07	2.5E-08	2.6E-11	**1.9E-07**	**1.9E-06**
Benzo(k)fluoranthene	1.2E-07	1.7E-08	1.9E-11	**1.3E-07**	1.3E-08	1.9E-09	2.0E-11	**1.5E-08**	**1.5E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	2.3E-06	3.4E-07	4.1E-11	**2.7E-06**	2.6E-07	3.9E-08	4.3E-11	**3.0E-07**	**3.0E-06**
Indeno(1,2,3-cd)pyrene	9.5E-07	1.4E-07	1.5E-11	**1.1E-06**	1.1E-07	1.6E-08	1.6E-11	**1.2E-07**	**1.2E-06**
Chromium Total	1.3E-05	NA	2.4E-07	**1.4E-05**	1.5E-06	NA	2.5E-07	**1.8E-06**	**1.5E-05**

Table J-5
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1e1			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.8E+00	7.3E-01	4.9E-06	2.9E-06	7.8E-07	3.6E-07
Benzo(a)pyrene	1.5E+00	7.3E+00	4.0E-05	2.4E-05	6.4E-06	3.0E-06
Benzo(b)fluoranthene	1.0E+00	7.3E-01	2.8E-06	1.7E-06	4.5E-07	2.1E-07
Benzo(k)fluoranthene	-	7.3E-02	NA	NA	NA	NA
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	4.7E-06	2.8E-06	7.5E-07	3.5E-07
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	2.3E-06	1.4E-06	3.7E-07	1.7E-07
Chromium Total	1.7E+01	5.0E-01	3.1E-05	1.9E-05	5.0E-06	2.3E-06

Table J-5
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1e1			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.8E+00	7.3E-01	0.13	1.8E-06	1.1E-06	4.1E-07	1.9E-07
Benzo(a)pyrene	1.5E+00	7.3E+00	0.13	1.5E-05	8.7E-06	3.3E-06	1.6E-06
Benzo(b)fluoranthene	1.0E+00	7.3E-01	0.13	1.0E-06	6.1E-07	2.3E-07	1.1E-07
Benzo(k)fluoranthene	-	7.3E-02	0.13	NA	NA	NA	NA
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	1.7E-06	1.0E-06	3.9E-07	1.8E-07
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	0.13	8.3E-07	5.0E-07	1.9E-07	8.8E-08
Chromium Total	1.7E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-5
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1e1			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.8E+00	1.1E-04	3.9E-11	2.4E-11	5.9E-11	2.7E-11
Benzo(a)pyrene	1.5E+00	1.1E-03	3.2E-10	1.9E-10	4.8E-10	2.3E-10
Benzo(b)fluoranthene	1.0E+00	1.1E-04	2.2E-11	1.3E-11	3.4E-11	1.6E-11
Benzo(k)fluoranthene	-	1.1E-04	NA	NA	NA	NA
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	4.1E-11	2.5E-11	6.2E-11	2.9E-11
Indeno(1,2,3-cd)pyrene	8.5E-01	1.1E-04	1.8E-11	1.1E-11	2.8E-11	1.3E-11
Chromium Total	1.7E+01	8.4E-02	2.8E-07	1.7E-07	4.2E-07	1.9E-07

Table J-5
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	7.8E-06	2.8E-06	6.3E-11	**1.1E-05**	1.1E-06	5.9E-07	8.6E-11	**1.7E-06**	**1.2E-05**
Benzo(a)pyrene	6.4E-05	2.3E-05	5.2E-10	**8.7E-05**	9.4E-06	4.9E-06	7.1E-10	**1.4E-05**	**1.0E-04**
Benzo(b)fluoranthene	4.4E-06	1.6E-06	3.6E-11	**6.0E-06**	6.5E-07	3.4E-07	4.9E-11	**9.9E-07**	**7.0E-06**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	7.5E-06	2.7E-06	6.6E-11	**1.0E-05**	1.1E-06	5.7E-07	9.0E-11	**1.7E-06**	**1.2E-05**
Indeno(1,2,3-cd)pyrene	3.6E-06	1.3E-06	2.9E-11	**5.0E-06**	5.4E-07	2.8E-07	4.0E-11	**8.1E-07**	**5.8E-06**
Chromium Total	4.9E-05	NA	4.5E-07	**5.0E-05**	7.3E-06	NA	6.1E-07	**7.9E-06**	**5.8E-05**

Table J-6
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2e1			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	5.5E+00	7.3E-01	1.5E-05	8.8E-06	2.4E-06	1.1E-06
Benzo(a)pyrene	4.8E+00	7.3E+00	1.3E-04	7.7E-05	2.1E-05	9.6E-06
Benzo(b)fluoranthene	7.1E+00	7.3E-01	1.9E-05	1.1E-05	3.1E-06	1.4E-06
Benzo(k)fluoranthene	2.8E+00	7.3E-02	7.4E-07	4.5E-07	1.2E-07	5.6E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.1E-01	7.3E+00	5.6E-06	3.4E-06	9.0E-07	4.2E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	2.9E-06	1.7E-06	4.6E-07	2.1E-07
Chromium Total	1.8E+01	5.0E-01	3.3E-05	2.0E-05	5.3E-06	2.5E-06

Table J-6
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2e1			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	5.5E+00	7.3E-01	0.13	5.3E-06	3.2E-06	1.2E-06	5.7E-07
Benzo(a)pyrene	4.8E+00	7.3E+00	0.13	4.7E-05	2.8E-05	1.1E-05	5.0E-06
Benzo(b)fluoranthene	7.1E+00	7.3E-01	0.13	6.9E-06	4.1E-06	1.6E-06	7.4E-07
Benzo(k)fluoranthene	2.8E+00	7.3E-02	0.13	2.7E-07	1.6E-07	6.2E-08	2.9E-08
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.1E-01	7.3E+00	0.13	2.0E-06	1.2E-06	4.7E-07	2.2E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	0.13	1.0E-06	6.2E-07	2.4E-07	1.1E-07
Chromium Total	1.8E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-6
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2e1			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	5.5E+00	1.1E-04	1.2E-10	7.1E-11	1.8E-10	8.3E-11
Benzo(a)pyrene	4.8E+00	1.1E-03	1.0E-09	6.2E-10	1.6E-09	7.3E-10
Benzo(b)fluoranthene	7.1E+00	1.1E-04	1.5E-10	9.2E-11	2.3E-10	1.1E-10
Benzo(k)fluoranthene	2.8E+00	1.1E-04	6.0E-11	3.6E-11	9.0E-11	4.2E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.1E-01	1.2E-03	5.0E-11	3.0E-11	7.4E-11	3.5E-11
Indeno(1,2,3-cd)pyrene	1.1E+00	1.1E-04	2.3E-11	1.4E-11	3.5E-11	1.6E-11
Chromium Total	1.8E+01	8.4E-02	3.0E-07	1.8E-07	4.4E-07	2.1E-07

Table J-6
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.3E-05	8.5E-06	1.9E-10	**3.2E-05**	3.5E-06	1.8E-06	2.6E-10	**5.2E-06**	**3.7E-05**
Benzo(a)pyrene	2.1E-04	7.5E-05	1.7E-09	**2.8E-04**	3.0E-05	1.6E-05	2.3E-09	**4.6E-05**	**3.3E-04**
Benzo(b)fluoranthene	3.0E-05	1.1E-05	2.5E-10	**4.1E-05**	4.5E-06	2.3E-06	3.4E-10	**6.8E-06**	**4.8E-05**
Benzo(k)fluoranthene	1.2E-06	4.3E-07	9.6E-11	**1.6E-06**	1.8E-07	9.1E-08	1.3E-10	**2.7E-07**	**1.9E-06**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	9.0E-06	3.3E-06	7.9E-11	**1.2E-05**	1.3E-06	6.9E-07	1.1E-10	**2.0E-06**	**1.4E-05**
Indeno(1,2,3-cd)pyrene	4.6E-06	1.7E-06	3.7E-11	**6.2E-06**	6.7E-07	3.5E-07	5.1E-11	**1.0E-06**	**7.2E-06**
Chromium Total	5.3E-05	NA	4.7E-07	**5.3E-05**	7.8E-06	NA	6.5E-07	**8.4E-06**	**6.2E-05**

Table J-7
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs} \times \sum_{i} \frac{\text{IRS} \times \text{FI} \times \text{OABS} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}} \times \text{CSFo} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**2-<6**
Cs	mg/kg	See Table A-3.1e1	
IRS	mg/day	200	200
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	156	156
ED	years	2	4
BW	kg	15	15
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**
Benzo(a)anthracene	1.8E+00	7.3E-01	2.2E-06	1.3E-06
Benzo(a)pyrene	1.5E+00	7.3E+00	1.8E-05	1.1E-05
Benzo(b)fluoranthene	1.0E+00	7.3E-01	1.2E-06	7.4E-07
Benzo(k)fluoranthene	-	7.3E-02	NA	NA
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	2.1E-06	1.2E-06
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	1.0E-06	6.1E-07
Chromium Total	1.7E+01	5.0E-01	1.4E-05	8.3E-06

Table J-7
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs} \times \sum_{i} \frac{\text{SA} \times \text{SSAF} \times \text{DABS} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}} \times \text{CSFd} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**2-<6**
Cs	mg/kg	See Table A-3.1e1	
SA	cm^2	2800	2800
SSAF	mg/cm^2-event	0.2	0.2
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	156	156
ED	years	2	4
CF	kg/mg	1E-06	1E-06
BW	kg	15	15
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**
Benzo(a)anthracene	1.8E+00	7.3E-01	0.13	7.9E-07	4.7E-07
Benzo(a)pyrene	1.5E+00	7.3E+00	0.13	6.5E-06	3.9E-06
Benzo(b)fluoranthene	1.0E+00	7.3E-01	0.13	4.5E-07	2.7E-07
Benzo(k)fluoranthene	-	7.3E-02	0.13	NA	NA
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	7.6E-07	4.5E-07
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	0.13	3.7E-07	2.2E-07
Chromium Total	1.7E+01	1.3E-02	NA	NA	NA

Table J-7
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**2-<6**
Cs	mg/kg	See Table A-3.1e1	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	8	8
EF	days/year	156	156
ED	years	2	4
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**
Benzo(a)anthracene	1.8E+00	1.1E-04	5.8E-12	3.5E-12
Benzo(a)pyrene	1.5E+00	1.1E-03	4.8E-11	2.9E-11
Benzo(b)fluoranthene	1.0E+00	1.1E-04	3.3E-12	2.0E-12
Benzo(k)fluoranthene	-	1.1E-04	NA	NA
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	6.1E-12	3.7E-12
Indeno(1,2,3-cd)pyrene	8.5E-01	1.1E-04	2.7E-12	1.6E-12
Chromium Total	1.7E+01	8.4E-02	4.1E-08	2.5E-08

Table J-7
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

	Total Cancer Risks			
	Child			
COPC	**Soil Ingestion**	**Dermal Contact**	**Inhalation**	**Total**
Benzo(a)anthracene	3.5E-06	1.3E-06	9.3E-12	**4.7E-06**
Benzo(a)pyrene	2.8E-05	1.0E-05	7.7E-11	**3.9E-05**
Benzo(b)fluoranthene	2.0E-06	7.2E-07	5.3E-12	**2.7E-06**
Benzo(k)fluoranthene	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	3.3E-06	1.2E-06	9.8E-12	**4.5E-06**
Indeno(1,2,3-cd)pyrene	1.6E-06	5.9E-07	4.4E-12	**2.2E-06**
Chromium Total	2.2E-05	NA	6.6E-08	**2.2E-05**

Table J-8
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1e1	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.8E+00	7.3E-01	2.4E-06	2.7E-07
Benzo(a)pyrene	1.5E+00	7.3E+00	2.0E-05	2.2E-06
Benzo(b)fluoranthene	1.0E+00	7.3E-01	1.4E-06	1.6E-07
Benzo(k)fluoranthene	-	7.3E-02	NA	NA
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	2.3E-06	2.6E-07
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	1.1E-06	1.3E-07
Chromium Total	1.7E+01	5.0E-01	1.5E-05	1.7E-06

Table J-8
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1e1	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.8E+00	7.3E-01	0.13	3.5E-07	4.1E-08
Benzo(a)pyrene	1.5E+00	7.3E+00	0.13	2.9E-06	3.3E-07
Benzo(b)fluoranthene	1.0E+00	7.3E-01	0.13	2.0E-07	2.3E-08
Benzo(k)fluoranthene	-	7.3E-02	0.13	NA	NA
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	3.4E-07	3.9E-08
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	0.13	1.7E-07	1.9E-08
Chromium Total	1.7E+01	1.3E-02	NA	NA	NA

Table J-8
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1e1	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.8E+00	1.1E-04	3.9E-11	4.1E-11
Benzo(a)pyrene	1.5E+00	1.1E-03	3.2E-10	3.4E-10
Benzo(b)fluoranthene	1.0E+00	1.1E-04	2.2E-11	2.3E-11
Benzo(k)fluoranthene	-	1.1E-04	NA	NA
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	4.1E-11	4.3E-11
Indeno(1,2,3-cd)pyrene	8.5E-01	1.1E-04	1.8E-11	1.9E-11
Chromium Total	1.7E+01	8.4E-02	2.8E-07	2.9E-07

Table J-8
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.4E-06	3.5E-07	3.9E-11	**2.8E-06**	2.7E-07	4.1E-08	4.1E-11	**3.1E-07**	**3.1E-06**
Benzo(a)pyrene	2.0E-05	2.9E-06	3.2E-10	**2.3E-05**	2.2E-06	3.3E-07	3.4E-10	**2.6E-06**	**2.5E-05**
Benzo(b)fluoranthene	1.4E-06	2.0E-07	2.2E-11	**1.6E-06**	1.6E-07	2.3E-08	2.3E-11	**1.8E-07**	**1.8E-06**
Benzo(k)fluoranthene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	2.3E-06	3.4E-07	4.1E-11	**2.7E-06**	2.6E-07	3.9E-08	4.3E-11	**3.0E-07**	**3.0E-06**
Indeno(1,2,3-cd)pyrene	1.1E-06	1.7E-07	1.8E-11	**1.3E-06**	1.3E-07	1.9E-08	1.9E-11	**1.5E-07**	**1.4E-06**
Chromium Total	1.5E-05	NA	2.8E-07	**1.6E-05**	1.7E-06	NA	2.9E-07	**2.0E-06**	**1.8E-05**

Table J-9
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2e1	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	5.5E+00	7.3E-01	7.3E-06	8.2E-07
Benzo(a)pyrene	4.8E+00	7.3E+00	6.4E-05	7.2E-06
Benzo(b)fluoranthene	7.1E+00	7.3E-01	9.5E-06	1.1E-06
Benzo(k)fluoranthene	2.8E+00	7.3E-02	3.7E-07	4.2E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	2.1E-01	7.3E+00	2.8E-06	3.2E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	1.4E-06	1.6E-07
Chromium Total	1.8E+01	5.0E-01	1.6E-05	1.9E-06

Table J-9
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2e1	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	5.5E+00	7.3E-01	0.13	1.1E-06	1.2E-07
Benzo(a)pyrene	4.8E+00	7.3E+00	0.13	9.3E-06	1.1E-06
Benzo(b)fluoranthene	7.1E+00	7.3E-01	0.13	1.4E-06	1.6E-07
Benzo(k)fluoranthene	2.8E+00	7.3E-02	0.13	5.4E-08	6.2E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	2.1E-01	7.3E+00	0.13	4.1E-07	4.7E-08
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	0.13	2.1E-07	2.4E-08
Chromium Total	1.8E+01	1.3E-02	NA	NA	NA

Table J-9
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2e1	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	5.5E+00	1.1E-04	1.2E-10	1.2E-10
Benzo(a)pyrene	4.8E+00	1.1E-03	1.0E-09	1.1E-09
Benzo(b)fluoranthene	7.1E+00	1.1E-04	1.5E-10	1.6E-10
Benzo(k)fluoranthene	2.8E+00	1.1E-04	6.0E-11	6.3E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	2.1E-01	1.2E-03	5.0E-11	5.2E-11
Indeno(1,2,3-cd)pyrene	1.1E+00	1.1E-04	2.3E-11	2.4E-11
Chromium Total	1.8E+01	8.4E-02	3.0E-07	3.1E-07

Table J-9
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	Cancer Risks
Benzo(a)anthracene	7.3E-06	1.1E-06	1.2E-10	**8.4E-06**	8.2E-07	1.2E-07	1.2E-10	**9.5E-07**	**9.3E-06**
Benzo(a)pyrene	6.4E-05	9.3E-06	1.0E-09	**7.4E-05**	7.2E-06	1.1E-06	1.1E-09	**8.3E-06**	**8.2E-05**
Benzo(b)fluoranthene	9.5E-06	1.4E-06	1.5E-10	**1.1E-05**	1.1E-06	1.6E-07	1.6E-10	**1.2E-06**	**1.2E-05**
Benzo(k)fluoranthene	3.7E-07	5.4E-08	6.0E-11	**4.3E-07**	4.2E-08	6.2E-09	6.3E-11	**4.8E-08**	**4.7E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	2.8E-06	4.1E-07	5.0E-11	**3.2E-06**	3.2E-07	4.7E-08	5.2E-11	**3.6E-07**	**3.6E-06**
Indeno(1,2,3-cd)pyrene	1.4E-06	2.1E-07	2.3E-11	**1.6E-06**	1.6E-07	2.4E-08	2.4E-11	**1.8E-07**	**1.8E-06**
Chromium Total	1.6E-05	NA	3.0E-07	**1.7E-05**	1.9E-06	NA	3.1E-07	**2.2E-06**	**1.9E-05**

Table J-10
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**0-<2**
Cs	mg/kg	See Table A-3.1e1
IRS	mg/day	100
FI	unitless	1
OABS	unitless	1
CF	kg/mg	1E-06
EF	days/year	78
ED	years	2
BW	kg	15
AT	days	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1
ADAF	unitless	10

			Incidential Soil Ingestion Risks
COPC	**Cs**	**CSFo**	**0-<2**
Benzo(a)anthracene	1.8E+00	7.3E-01	5.4E-07
Benzo(a)pyrene	1.5E+00	7.3E+00	4.5E-06
Benzo(b)fluoranthene	1.0E+00	7.3E-01	3.1E-07
Benzo(k)fluoranthene	-	7.3E-02	NA
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	5.2E-07
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	2.5E-07
Chromium Total	1.7E+01	5.0E-01	3.4E-06

Table J-10
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs} \times \sum_{i} \frac{\text{SA} \times \text{SSAF} \times \text{DABS} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}} \times \text{CSFd} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**0-<2**
Cs	mg/kg	See Table A-3.1e1
SA	cm^2	2800
SSAF	mg/cm^2-event	0.04
DABS	unitless	See Table H-1
EV	events/day	1
EF	days/year	78
ED	years	2
CF	kg/mg	1E-06
BW	kg	15
AT	days	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1
ADAF	unitless	10

				Dermal Contact Risks
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**
Benzo(a)anthracene	1.8E+00	7.3E-01	0.13	7.9E-08
Benzo(a)pyrene	1.5E+00	7.3E+00	0.13	6.5E-07
Benzo(b)fluoranthene	1.0E+00	7.3E-01	0.13	4.5E-08
Benzo(k)fluoranthene	-	7.3E-02	0.13	NA
Chrysene	-	7.3E-03	0.13	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	7.6E-08
Indeno(1,2,3-cd)pyrene	8.5E-01	7.3E-01	0.13	3.7E-08
Chromium Total	1.7E+01	1.3E-02	NA	NA

Table J-10
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**0-<2**
Cs	mg/kg	See Table A-3.1e1
PEF	m^3/kg	1.40E+09
ET	hours/day	4
EF	days/year	78
ED	years	2
CF	µg/mg	1000
AT	hours	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2
ADAF	unitless	10

COPC	Cs	URFi	Inhalation of Particulate Risks 0-<2
Benzo(a)anthracene	1.8E+00	1.1E-04	1.5E-12
Benzo(a)pyrene	1.5E+00	1.1E-03	1.2E-11
Benzo(b)fluoranthene	1.0E+00	1.1E-04	8.3E-13
Benzo(k)fluoranthene	-	1.1E-04	NA
Chrysene	-	1.1E-05	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	1.5E-12
Indeno(1,2,3-cd)pyrene	8.5E-01	1.1E-04	6.8E-13
Chromium Total	1.7E+01	8.4E-02	1.0E-08

Table J-10
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Child Recreational Visitor Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E1
Waterbury, Connecticut

	Total Cancer Risks			
	Child			
COPC	**Soil Ingestion**	**Dermal Contact**	**Inhalation**	**Total**
Benzo(a)anthracene	5.4E-07	7.9E-08	1.5E-12	**6.2E-07**
Benzo(a)pyrene	4.5E-06	6.5E-07	1.2E-11	**5.1E-06**
Benzo(b)fluoranthene	3.1E-07	4.5E-08	8.3E-13	**3.5E-07**
Benzo(k)fluoranthene	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	5.2E-07	7.6E-08	1.5E-12	**6.0E-07**
Indeno(1,2,3-cd)pyrene	2.5E-07	3.7E-08	6.8E-13	**2.9E-07**
Chromium Total	3.4E-06	NA	1.0E-08	**3.5E-06**

Table J-11
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**1-<2**	**2-<6**
Cs	mg/kg	See Table A-3.1e2	
IRS	mg/day	200	200
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	250	250
ED	years	1	4
BW	kg	15	15
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**1-<2**	**2-<6**
Benzo(a)anthracene	9.8E-01	7.3E-01	9.3E-07	1.1E-06
Benzo(a)pyrene	8.2E-01	7.3E+00	7.8E-06	9.4E-06
Benzo(b)fluoranthene	1.5E+00	7.3E-01	1.4E-06	1.7E-06
Benzo(k)fluoranthene	-	7.3E-02	NA	NA
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	1.7E-06	2.0E-06
Indeno(1,2,3-cd)pyrene	7.9E-01	7.3E-01	7.5E-07	9.0E-07
Chromium Total	1.3E+01	5.0E-01	8.5E-06	1.0E-05

Table J-11
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**1-<2**	**2-<6**
Cs	mg/kg	See Table A-3.1e2	
SA	cm^2	2800	2800
SSAF	mg/cm^2-event	0.2	0.2
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	250	250
ED	years	1	4
CF	kg/mg	1E-06	1E-06
BW	kg	15	15
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**1-<2**	**2-<6**
Benzo(a)anthracene	9.8E-01	7.3E-01	0.13	3.4E-07	4.1E-07
Benzo(a)pyrene	8.2E-01	7.3E+00	0.13	2.9E-06	3.4E-06
Benzo(b)fluoranthene	1.5E+00	7.3E-01	0.13	5.2E-07	6.2E-07
Benzo(k)fluoranthene	-	7.3E-02	0.13	NA	NA
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	6.1E-07	7.4E-07
Indeno(1,2,3-cd)pyrene	7.9E-01	7.3E-01	0.13	2.7E-07	3.3E-07
Chromium Total	1.3E+01	1.3E-02	NA	NA	NA

Table J-11
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**1-<2**	**2-<6**
Cs	mg/kg	See Table A-3.1e2	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	8	8
EF	days/year	250	250
ED	years	1	4
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**1-<2**	**2-<6**
Benzo(a)anthracene	9.8E-01	1.1E-04	2.5E-12	3.0E-12
Benzo(a)pyrene	8.2E-01	1.1E-03	2.1E-11	2.5E-11
Benzo(b)fluoranthene	1.5E+00	1.1E-04	3.8E-12	4.6E-12
Benzo(k)fluoranthene	-	1.1E-04	NA	NA
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	4.9E-12	5.9E-12
Indeno(1,2,3-cd)pyrene	7.9E-01	1.1E-04	2.0E-12	2.4E-12
Chromium Total	1.3E+01	8.4E-02	2.6E-08	3.1E-08

Table J-11
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

	Total Cancer Risks			
	Child			
COPC	**Soil Ingestion**	**Dermal Contact**	**Inhalation**	**Total**
Benzo(a)anthracene	2.0E-06	7.4E-07	5.5E-12	**2.8E-06**
Benzo(a)pyrene	1.7E-05	6.3E-06	4.6E-11	**2.4E-05**
Benzo(b)fluoranthene	3.1E-06	1.1E-06	8.4E-12	**4.3E-06**
Benzo(k)fluoranthene	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	3.7E-06	1.3E-06	1.1E-11	**5.1E-06**
Indeno(1,2,3-cd)pyrene	1.7E-06	6.0E-07	4.5E-12	**2.3E-06**
Chromium Total	1.9E-05	NA	5.6E-08	**1.9E-05**

Table J-12
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**1-<2**	**2-<3**
Cs	mg/kg	See Table A-3.1e2	
IRS	mg/day	100	100
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	72	72
ED	years	1	1
BW	kg	15	15
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**1-<2**	**2-<3**
Benzo(a)anthracene	9.8E-01	7.3E-01	1.3E-07	4.0E-08
Benzo(a)pyrene	8.2E-01	7.3E+00	1.1E-06	3.4E-07
Benzo(b)fluoranthene	1.5E+00	7.3E-01	2.0E-07	6.1E-08
Benzo(k)fluoranthene	-	7.3E-02	NA	NA
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	2.4E-07	7.3E-08
Indeno(1,2,3-cd)pyrene	7.9E-01	7.3E-01	1.1E-07	3.3E-08
Chromium Total	1.3E+01	5.0E-01	1.2E-06	3.7E-07

Table J-12
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**1-<2**	**2-<3**
Cs	mg/kg	See Table A-3.1e2	
SA	cm^2	2800	2800
SSAF	mg/cm^2-event	0.04	0.04
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	72	72
ED	years	1	1
CF	kg/mg	1E-06	1E-06
BW	kg	15	15
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**1-<2**	**2-<3**
Benzo(a)anthracene	9.8E-01	7.3E-01	0.13	1.9E-08	5.8E-09
Benzo(a)pyrene	8.2E-01	7.3E+00	0.13	1.6E-07	4.9E-08
Benzo(b)fluoranthene	1.5E+00	7.3E-01	0.13	3.0E-08	8.9E-09
Benzo(k)fluoranthene	-	7.3E-02	0.13	NA	NA
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	1.8E-01	7.3E+00	0.13	3.5E-08	1.1E-08
Indeno(1,2,3-cd)pyrene	7.9E-01	7.3E-01	0.13	1.6E-08	4.7E-09
Chromium Total	1.3E+01	1.3E-02	NA	NA	NA

Table J-12
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**1-<2**	**2-<3**
Cs	mg/kg	See Table A-3.1e2	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	4	4
EF	days/year	72	72
ED	years	1	1
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**1-<2**	**2-<3**
Benzo(a)anthracene	9.8E-01	1.1E-04	3.6E-13	1.1E-13
Benzo(a)pyrene	8.2E-01	1.1E-03	3.0E-12	9.1E-13
Benzo(b)fluoranthene	1.5E+00	1.1E-04	5.5E-13	1.6E-13
Benzo(k)fluoranthene	-	1.1E-04	NA	NA
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	1.8E-01	1.2E-03	7.1E-13	2.1E-13
Indeno(1,2,3-cd)pyrene	7.9E-01	1.1E-04	2.9E-13	8.7E-14
Chromium Total	1.3E+01	8.4E-02	3.7E-09	1.1E-09

Table J-12
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Day Care Child Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E2
Waterbury, Connecticut

	Total Cancer Risks			
	Child			
COPC	**Soil Ingestion**	**Dermal Contact**	**Inhalation**	**Total**
Benzo(a)anthracene	1.7E-07	2.5E-08	4.7E-13	**2.0E-07**
Benzo(a)pyrene	1.5E-06	2.1E-07	3.9E-12	**1.7E-06**
Benzo(b)fluoranthene	2.7E-07	3.9E-08	7.1E-13	**3.0E-07**
Benzo(k)fluoranthene	NA	NA	NA	**NA**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	3.2E-07	4.6E-08	9.3E-13	**3.6E-07**
Indeno(1,2,3-cd)pyrene	1.4E-07	2.1E-08	3.8E-13	**1.6E-07**
Chromium Total	1.6E-06	NA	4.8E-09	**1.6E-06**

Table J-13
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1e3			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	6.8E+00	7.3E-01	1.8E-05	1.1E-05	2.9E-06	1.4E-06
Benzo(a)pyrene	1.2E+01	7.3E+00	3.2E-04	1.9E-04	5.1E-05	2.4E-05
Benzo(b)fluoranthene	1.0E+01	7.3E-01	2.7E-05	1.6E-05	4.3E-06	2.0E-06
Benzo(k)fluoranthene	1.5E+01	7.3E-02	3.9E-06	2.4E-06	6.3E-07	3.0E-07
Chrysene	9.7E+00	7.3E-03	2.6E-07	1.6E-07	4.2E-08	1.9E-08
Dibenz(a,h)anthracene	9.1E-01	7.3E+00	2.4E-05	1.5E-05	3.9E-06	1.8E-06
Indeno(1,2,3-cd)pyrene	1.9E+00	7.3E-01	5.1E-06	3.0E-06	8.2E-07	3.8E-07
Chromium Total	2.0E+01	5.0E-01	3.6E-05	2.2E-05	5.9E-06	2.7E-06

Table J-13
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1e3			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	6.8E+00	7.3E-01	0.13	6.6E-06	4.0E-06	1.5E-06	7.0E-07
Benzo(a)pyrene	1.2E+01	7.3E+00	0.13	1.2E-04	7.0E-05	2.7E-05	1.2E-05
Benzo(b)fluoranthene	1.0E+01	7.3E-01	0.13	9.8E-06	5.9E-06	2.2E-06	1.0E-06
Benzo(k)fluoranthene	1.5E+01	7.3E-02	0.13	1.4E-06	8.6E-07	3.3E-07	1.5E-07
Chrysene	9.7E+00	7.3E-03	0.13	9.4E-08	5.7E-08	2.2E-08	1.0E-08
Dibenz(a,h)anthracene	9.1E-01	7.3E+00	0.13	8.8E-06	5.3E-06	2.0E-06	9.4E-07
Indeno(1,2,3-cd)pyrene	1.9E+00	7.3E-01	0.13	1.8E-06	1.1E-06	4.2E-07	2.0E-07
Chromium Total	2.0E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-13
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1e3			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	6.8E+00	1.1E-04	1.5E-10	8.8E-11	2.2E-10	1.0E-10
Benzo(a)pyrene	1.2E+01	1.1E-03	2.6E-09	1.5E-09	3.9E-09	1.8E-09
Benzo(b)fluoranthene	1.0E+01	1.1E-04	2.2E-10	1.3E-10	3.3E-10	1.5E-10
Benzo(k)fluoranthene	1.5E+01	1.1E-04	3.2E-10	1.9E-10	4.8E-10	2.2E-10
Chrysene	9.7E+00	1.1E-05	2.1E-11	1.3E-11	3.1E-11	1.5E-11
Dibenz(a,h)anthracene	9.1E-01	1.2E-03	2.1E-10	1.3E-10	3.2E-10	1.5E-10
Indeno(1,2,3-cd)pyrene	1.9E+00	1.1E-04	4.1E-11	2.5E-11	6.2E-11	2.9E-11
Chromium Total	2.0E+01	8.4E-02	3.3E-07	2.0E-07	4.9E-07	2.3E-07

Table J-13
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.9E-05	1.1E-05	2.3E-10	**4.0E-05**	4.3E-06	2.2E-06	3.2E-10	**6.5E-06**	**4.6E-05**
Benzo(a)pyrene	5.1E-04	1.9E-04	4.1E-09	**7.0E-04**	7.5E-05	3.9E-05	5.7E-09	**1.1E-04**	**8.1E-04**
Benzo(b)fluoranthene	4.3E-05	1.6E-05	3.5E-10	**5.9E-05**	6.3E-06	3.3E-06	4.8E-10	**9.6E-06**	**6.8E-05**
Benzo(k)fluoranthene	6.3E-06	2.3E-06	5.1E-10	**8.6E-06**	9.3E-07	4.8E-07	7.0E-10	**1.4E-06**	**1.0E-05**
Chrysene	4.1E-07	1.5E-07	3.3E-11	**5.7E-07**	6.1E-08	3.2E-08	4.6E-11	**9.3E-08**	**6.6E-07**
Dibenz(a,h)anthracene	3.9E-05	1.4E-05	3.4E-10	**5.3E-05**	5.7E-06	3.0E-06	4.7E-10	**8.7E-06**	**6.2E-05**
Indeno(1,2,3-cd)pyrene	8.1E-06	3.0E-06	6.6E-11	**1.1E-05**	1.2E-06	6.2E-07	9.0E-11	**1.8E-06**	**1.3E-05**
Chromium Total	5.8E-05	NA	5.2E-07	**5.9E-05**	8.6E-06	NA	7.2E-07	**9.3E-06**	**6.8E-05**

Table J-14
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2e3			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	4.8E+00	7.3E-01	1.3E-05	7.6E-06	2.0E-06	9.5E-07
Benzo(a)pyrene	5.6E+00	7.3E+00	1.5E-04	9.0E-05	2.4E-05	1.1E-05
Benzo(b)fluoranthene	7.0E+00	7.3E-01	1.9E-05	1.1E-05	3.0E-06	1.4E-06
Benzo(k)fluoranthene	6.9E+00	7.3E-02	1.8E-06	1.1E-06	3.0E-07	1.4E-07
Chrysene	6.5E+00	7.3E-03	1.7E-07	1.0E-07	2.8E-08	1.3E-08
Dibenz(a,h)anthracene	6.5E-01	7.3E+00	1.7E-05	1.0E-05	2.8E-06	1.3E-06
Indeno(1,2,3-cd)pyrene	1.7E+00	7.3E-01	4.6E-06	2.8E-06	7.5E-07	3.5E-07
Chromium Total	4.1E+01	5.0E-01	7.4E-05	4.5E-05	1.2E-05	5.6E-06

Table J-14
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2e3			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	4.8E+00	7.3E-01	0.13	4.6E-06	2.8E-06	1.1E-06	4.9E-07
Benzo(a)pyrene	5.6E+00	7.3E+00	0.13	5.5E-05	3.3E-05	1.2E-05	5.8E-06
Benzo(b)fluoranthene	7.0E+00	7.3E-01	0.13	6.8E-06	4.1E-06	1.6E-06	7.3E-07
Benzo(k)fluoranthene	6.9E+00	7.3E-02	0.13	6.7E-07	4.0E-07	1.5E-07	7.1E-08
Chrysene	6.5E+00	7.3E-03	0.13	6.3E-08	3.8E-08	1.4E-08	6.8E-09
Dibenz(a,h)anthracene	6.5E-01	7.3E+00	0.13	6.3E-06	3.8E-06	1.4E-06	6.7E-07
Indeno(1,2,3-cd)pyrene	1.7E+00	7.3E-01	0.13	1.7E-06	1.0E-06	3.9E-07	1.8E-07
Chromium Total	4.1E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-14
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2e3			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	4.8E+00	1.1E-04	1.0E-10	6.1E-11	1.5E-10	7.2E-11
Benzo(a)pyrene	5.6E+00	1.1E-03	1.2E-09	7.3E-10	1.8E-09	8.5E-10
Benzo(b)fluoranthene	7.0E+00	1.1E-04	1.5E-10	9.1E-11	2.3E-10	1.1E-10
Benzo(k)fluoranthene	6.9E+00	1.1E-04	1.5E-10	8.9E-11	2.2E-10	1.0E-10
Chrysene	6.5E+00	1.1E-05	1.4E-11	8.4E-12	2.1E-11	9.8E-12
Dibenz(a,h)anthracene	6.5E-01	1.2E-03	1.5E-10	9.1E-11	2.3E-10	1.1E-10
Indeno(1,2,3-cd)pyrene	1.7E+00	1.1E-04	3.7E-11	2.2E-11	5.6E-11	2.6E-11
Chromium Total	4.1E+01	8.4E-02	6.7E-07	4.0E-07	1.0E-06	4.7E-07

Table J-14
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.0E-05	7.4E-06	1.6E-10	**2.8E-05**	3.0E-06	1.6E-06	2.3E-10	**4.5E-06**	**3.2E-05**
Benzo(a)pyrene	2.4E-04	8.7E-05	1.9E-09	**3.3E-04**	3.5E-05	1.8E-05	2.7E-09	**5.4E-05**	**3.8E-04**
Benzo(b)fluoranthene	3.0E-05	1.1E-05	2.4E-10	**4.1E-05**	4.4E-06	2.3E-06	3.3E-10	**6.7E-06**	**4.8E-05**
Benzo(k)fluoranthene	2.9E-06	1.1E-06	2.4E-10	**4.0E-06**	4.3E-07	2.2E-07	3.3E-10	**6.6E-07**	**4.7E-06**
Chrysene	2.8E-07	1.0E-07	2.2E-11	**3.8E-07**	4.1E-08	2.1E-08	3.1E-11	**6.2E-08**	**4.4E-07**
Dibenz(a,h)anthracene	2.8E-05	1.0E-05	2.4E-10	**3.8E-05**	4.1E-06	2.1E-06	3.3E-10	**6.2E-06**	**4.4E-05**
Indeno(1,2,3-cd)pyrene	7.4E-06	2.7E-06	6.0E-11	**1.0E-05**	1.1E-06	5.7E-07	8.2E-11	**1.7E-06**	**1.2E-05**
Chromium Total	1.2E-04	NA	1.1E-06	**1.2E-04**	1.8E-05	NA	1.5E-06	**1.9E-05**	**1.4E-04**

Table J-15
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1e3	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.8E+00	7.3E-01	2.4E-06	2.8E-07
Benzo(a)pyrene	1.4E+00	7.3E+00	1.9E-05	2.1E-06
Benzo(b)fluoranthene	1.6E+00	7.3E-01	2.2E-06	2.5E-07
Benzo(k)fluoranthene	1.1E+00	7.3E-02	1.5E-07	1.7E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	2.6E-01	7.3E+00	3.4E-06	3.9E-07
Indeno(1,2,3-cd)pyrene	9.7E-01	7.3E-01	1.3E-06	1.5E-07
Chromium Total	2.0E+01	5.0E-01	1.9E-05	2.1E-06

Table J-15
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1e3	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.8E+00	7.3E-01	0.13	3.6E-07	4.1E-08
Benzo(a)pyrene	1.4E+00	7.3E+00	0.13	2.7E-06	3.1E-07
Benzo(b)fluoranthene	1.6E+00	7.3E-01	0.13	3.2E-07	3.6E-08
Benzo(k)fluoranthene	1.1E+00	7.3E-02	0.13	2.1E-08	2.5E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	2.6E-01	7.3E+00	0.13	5.0E-07	5.7E-08
Indeno(1,2,3-cd)pyrene	9.7E-01	7.3E-01	0.13	1.9E-07	2.2E-08
Chromium Total	2.0E+01	1.3E-02	NA	NA	NA

Table J-15
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1e3	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.8E+00	1.1E-04	4.0E-11	4.2E-11
Benzo(a)pyrene	1.4E+00	1.1E-03	3.0E-10	3.2E-10
Benzo(b)fluoranthene	1.6E+00	1.1E-04	3.5E-11	3.7E-11
Benzo(k)fluoranthene	1.1E+00	1.1E-04	2.4E-11	2.5E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	2.6E-01	1.2E-03	6.0E-11	6.3E-11
Indeno(1,2,3-cd)pyrene	9.7E-01	1.1E-04	2.1E-11	2.2E-11
Chromium Total	2.0E+01	8.4E-02	3.3E-07	3.5E-07

Table J-15
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.4E-06	3.6E-07	4.0E-11	**2.8E-06**	2.8E-07	4.1E-08	4.2E-11	**3.2E-07**	**3.1E-06**
Benzo(a)pyrene	1.9E-05	2.7E-06	3.0E-10	**2.1E-05**	2.1E-06	3.1E-07	3.2E-10	**2.4E-06**	**2.4E-05**
Benzo(b)fluoranthene	2.2E-06	3.2E-07	3.5E-11	**2.5E-06**	2.5E-07	3.6E-08	3.7E-11	**2.8E-07**	**2.8E-06**
Benzo(k)fluoranthene	1.5E-07	2.1E-08	2.4E-11	**1.7E-07**	1.7E-08	2.5E-09	2.5E-11	**1.9E-08**	**1.9E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	3.4E-06	5.0E-07	6.0E-11	**3.9E-06**	3.9E-07	5.7E-08	6.3E-11	**4.4E-07**	**4.4E-06**
Indeno(1,2,3-cd)pyrene	1.3E-06	1.9E-07	2.1E-11	**1.5E-06**	1.5E-07	2.2E-08	2.2E-11	**1.7E-07**	**1.6E-06**
Chromium Total	1.9E-05	NA	3.3E-07	**1.9E-05**	2.1E-06	NA	3.5E-07	**2.4E-06**	**2.1E-05**

Table J-16
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2e3	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.4E+00	7.3E-01	1.9E-06	2.1E-07
Benzo(a)pyrene	1.1E+00	7.3E+00	1.4E-05	1.6E-06
Benzo(b)fluoranthene	1.3E+00	7.3E-01	1.7E-06	1.9E-07
Benzo(k)fluoranthene	8.8E-01	7.3E-02	1.2E-07	1.3E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	2.0E-01	7.3E+00	2.6E-06	3.0E-07
Indeno(1,2,3-cd)pyrene	7.4E-01	7.3E-01	9.8E-07	1.1E-07
Chromium Total	4.9E+01	5.0E-01	4.5E-05	5.1E-06

Table J-16
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2e3	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.4E+00	7.3E-01	0.13	2.7E-07	3.1E-08
Benzo(a)pyrene	1.1E+00	7.3E+00	0.13	2.1E-06	2.4E-07
Benzo(b)fluoranthene	1.3E+00	7.3E-01	0.13	2.5E-07	2.8E-08
Benzo(k)fluoranthene	8.8E-01	7.3E-02	0.13	1.7E-08	2.0E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	2.0E-01	7.3E+00	0.13	3.8E-07	4.4E-08
Indeno(1,2,3-cd)pyrene	7.4E-01	7.3E-01	0.13	1.4E-07	1.6E-08
Chromium Total	4.9E+01	1.3E-02	NA	NA	NA

Table J-16
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2e3	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.4E+00	1.1E-04	3.0E-11	3.2E-11
Benzo(a)pyrene	1.1E+00	1.1E-03	2.3E-10	2.5E-10
Benzo(b)fluoranthene	1.3E+00	1.1E-04	2.8E-11	2.9E-11
Benzo(k)fluoranthene	8.8E-01	1.1E-04	1.9E-11	2.0E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	2.0E-01	1.2E-03	4.6E-11	4.9E-11
Indeno(1,2,3-cd)pyrene	7.4E-01	1.1E-04	1.6E-11	1.7E-11
Chromium Total	4.9E+01	8.4E-02	8.1E-07	8.5E-07

Table J-16
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area E3
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	1.9E-06	2.7E-07	3.0E-11	**2.1E-06**	2.1E-07	3.1E-08	3.2E-11	**2.4E-07**	**2.4E-06**
Benzo(a)pyrene	1.4E-05	2.1E-06	2.3E-10	**1.7E-05**	1.6E-06	2.4E-07	2.5E-10	**1.9E-06**	**1.8E-05**
Benzo(b)fluoranthene	1.7E-06	2.5E-07	2.8E-11	**2.0E-06**	1.9E-07	2.8E-08	2.9E-11	**2.2E-07**	**2.2E-06**
Benzo(k)fluoranthene	1.2E-07	1.7E-08	1.9E-11	**1.4E-07**	1.3E-08	2.0E-09	2.0E-11	**1.5E-08**	**1.5E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	2.6E-06	3.8E-07	4.6E-11	**3.0E-06**	3.0E-07	4.4E-08	4.9E-11	**3.4E-07**	**3.4E-06**
Indeno(1,2,3-cd)pyrene	9.8E-07	1.4E-07	1.6E-11	**1.1E-06**	1.1E-07	1.6E-08	1.7E-11	**1.3E-07**	**1.3E-06**
Chromium Total	4.5E-05	NA	8.1E-07	**4.6E-05**	5.1E-06	NA	8.5E-07	**5.9E-06**	**5.2E-05**

Table J-17
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1f			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.9E+00	7.3E-01	5.0E-06	3.0E-06	8.0E-07	3.7E-07
Benzo(a)pyrene	1.0E+00	7.3E+00	2.8E-05	1.7E-05	4.5E-06	2.1E-06
Benzo(b)fluoranthene	2.1E+00	7.3E-01	5.6E-06	3.4E-06	9.0E-07	4.2E-07
Benzo(k)fluoranthene	2.0E+00	7.3E-02	5.4E-07	3.3E-07	8.7E-08	4.1E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.5E-01	7.3E+00	9.4E-06	5.6E-06	1.5E-06	7.0E-07
Indeno(1,2,3-cd)pyrene	7.7E-01	7.3E-01	2.1E-06	1.2E-06	3.3E-07	1.5E-07
Chromium Total	1.8E+01	5.0E-01	3.4E-05	2.0E-05	5.4E-06	2.5E-06

Table J-17
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1f			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.9E+00	7.3E-01	0.13	1.8E-06	1.1E-06	4.1E-07	1.9E-07
Benzo(a)pyrene	1.0E+00	7.3E+00	0.13	1.0E-05	6.1E-06	2.3E-06	1.1E-06
Benzo(b)fluoranthene	2.1E+00	7.3E-01	0.13	2.0E-06	1.2E-06	4.7E-07	2.2E-07
Benzo(k)fluoranthene	2.0E+00	7.3E-02	0.13	2.0E-07	1.2E-07	4.5E-08	2.1E-08
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.5E-01	7.3E+00	0.13	3.4E-06	2.0E-06	7.8E-07	3.6E-07
Indeno(1,2,3-cd)pyrene	7.7E-01	7.3E-01	0.13	7.5E-07	4.5E-07	1.7E-07	8.0E-08
Chromium Total	1.8E+01	1.3E-02	NA	NA	NA	NA	NA

Table J-17
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1f			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.9E+00	1.1E-04	4.0E-11	2.4E-11	6.0E-11	2.8E-11
Benzo(a)pyrene	1.0E+00	1.1E-03	2.3E-10	1.4E-10	3.4E-10	1.6E-10
Benzo(b)fluoranthene	2.1E+00	1.1E-04	4.5E-11	2.7E-11	6.8E-11	3.2E-11
Benzo(k)fluoranthene	2.0E+00	1.1E-04	4.4E-11	2.6E-11	6.6E-11	3.1E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.5E-01	1.2E-03	8.2E-11	4.9E-11	1.2E-10	5.8E-11
Indeno(1,2,3-cd)pyrene	7.7E-01	1.1E-04	1.7E-11	1.0E-11	2.5E-11	1.2E-11
Chromium Total	1.8E+01	8.4E-02	3.0E-07	1.8E-07	4.5E-07	2.1E-07

Table J-17
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	8.0E-06	2.9E-06	6.4E-11	**1.1E-05**	1.2E-06	6.1E-07	8.8E-11	**1.8E-06**	**1.3E-05**
Benzo(a)pyrene	4.5E-05	1.6E-05	3.6E-10	**6.1E-05**	6.6E-06	3.4E-06	5.0E-10	**1.0E-05**	**7.1E-05**
Benzo(b)fluoranthene	9.0E-06	3.3E-06	7.3E-11	**1.2E-05**	1.3E-06	6.9E-07	1.0E-10	**2.0E-06**	**1.4E-05**
Benzo(k)fluoranthene	8.7E-07	3.2E-07	7.0E-11	**1.2E-06**	1.3E-07	6.7E-08	9.7E-11	**1.9E-07**	**1.4E-06**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	1.5E-05	5.5E-06	1.3E-10	**2.0E-05**	2.2E-06	1.1E-06	1.8E-10	**3.4E-06**	**2.4E-05**
Indeno(1,2,3-cd)pyrene	3.3E-06	1.2E-06	2.7E-11	**4.5E-06**	4.9E-07	2.5E-07	3.7E-11	**7.4E-07**	**5.2E-06**
Chromium Total	5.4E-05	NA	4.8E-07	**5.4E-05**	7.9E-06	NA	6.6E-07	**8.6E-06**	**6.3E-05**

Table J-18
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2f			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.6E+00	7.3E-01	4.3E-06	2.6E-06	6.9E-07	3.2E-07
Benzo(a)pyrene	1.3E+00	7.3E+00	3.6E-05	2.1E-05	5.7E-06	2.7E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	4.8E-06	2.9E-06	7.8E-07	3.6E-07
Benzo(k)fluoranthene	1.7E+00	7.3E-02	4.7E-07	2.8E-07	7.5E-08	3.5E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	8.7E-06	5.2E-06	1.4E-06	6.5E-07
Indeno(1,2,3-cd)pyrene	7.2E-01	7.3E-01	1.9E-06	1.1E-06	3.1E-07	1.4E-07
Chromium Total	1.1E+02	5.0E-01	1.9E-04	1.2E-04	3.1E-05	1.5E-05

Table J-18
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2f			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.6E+00	7.3E-01	0.13	1.6E-06	9.4E-07	3.6E-07	1.7E-07
Benzo(a)pyrene	1.3E+00	7.3E+00	0.13	1.3E-05	7.8E-06	3.0E-06	1.4E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	0.13	1.8E-06	1.1E-06	4.0E-07	1.9E-07
Benzo(k)fluoranthene	1.7E+00	7.3E-02	0.13	1.7E-07	1.0E-07	3.9E-08	1.8E-08
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	0.13	3.2E-06	1.9E-06	7.2E-07	3.4E-07
Indeno(1,2,3-cd)pyrene	7.2E-01	7.3E-01	0.13	7.0E-07	4.2E-07	1.6E-07	7.4E-08
Chromium Total	1.1E+02	1.3E-02	NA	NA	NA	NA	NA

Table J-18
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2f			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.6E+00	1.1E-04	3.5E-11	2.1E-11	5.2E-11	2.4E-11
Benzo(a)pyrene	1.3E+00	1.1E-03	2.9E-10	1.7E-10	4.3E-10	2.0E-10
Benzo(b)fluoranthene	1.8E+00	1.1E-04	3.9E-11	2.3E-11	5.9E-11	2.7E-11
Benzo(k)fluoranthene	1.7E+00	1.1E-04	3.8E-11	2.3E-11	5.6E-11	2.6E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	3.3E-01	1.2E-03	7.6E-11	4.6E-11	1.1E-10	5.3E-11
Indeno(1,2,3-cd)pyrene	7.2E-01	1.1E-04	1.5E-11	9.3E-12	2.3E-11	1.1E-11
Chromium Total	1.1E+02	8.4E-02	1.7E-06	1.0E-06	2.6E-06	1.2E-06

Table J-18
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	6.9E-06	2.5E-06	5.5E-11	**9.4E-06**	1.0E-06	5.2E-07	7.6E-11	**1.5E-06**	**1.1E-05**
Benzo(a)pyrene	5.7E-05	2.1E-05	4.6E-10	**7.8E-05**	8.4E-06	4.4E-06	6.3E-10	**1.3E-05**	**9.1E-05**
Benzo(b)fluoranthene	7.8E-06	2.8E-06	6.3E-11	**1.1E-05**	1.1E-06	5.9E-07	8.6E-11	**1.7E-06**	**1.2E-05**
Benzo(k)fluoranthene	7.5E-07	2.7E-07	6.0E-11	**1.0E-06**	1.1E-07	5.7E-08	8.3E-11	**1.7E-07**	**1.2E-06**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	1.4E-05	5.0E-06	1.2E-10	**1.9E-05**	2.0E-06	1.1E-06	1.7E-10	**3.1E-06**	**2.2E-05**
Indeno(1,2,3-cd)pyrene	3.1E-06	1.1E-06	2.5E-11	**4.2E-06**	4.5E-07	2.3E-07	3.4E-11	**6.8E-07**	**4.9E-06**
Chromium Total	3.1E-04	NA	2.8E-06	**3.1E-04**	4.6E-05	NA	3.8E-06	**5.0E-05**	**3.6E-04**

Table J-19
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1f	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.9E+00	7.3E-01	2.5E-06	2.8E-07
Benzo(a)pyrene	1.0E+00	7.3E+00	1.4E-05	1.6E-06
Benzo(b)fluoranthene	2.1E+00	7.3E-01	2.8E-06	3.2E-07
Benzo(k)fluoranthene	2.0E+00	7.3E-02	2.7E-07	3.1E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	3.5E-01	7.3E+00	4.7E-06	5.3E-07
Indeno(1,2,3-cd)pyrene	7.7E-01	7.3E-01	1.0E-06	1.2E-07
Chromium Total	1.8E+01	5.0E-01	1.7E-05	1.9E-06

Table J-19
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1f	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.9E+00	7.3E-01	0.13	3.6E-07	4.1E-08
Benzo(a)pyrene	1.0E+00	7.3E+00	0.13	2.0E-06	2.3E-07
Benzo(b)fluoranthene	2.1E+00	7.3E-01	0.13	4.1E-07	4.7E-08
Benzo(k)fluoranthene	2.0E+00	7.3E-02	0.13	4.0E-08	4.5E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	3.5E-01	7.3E+00	0.13	6.8E-07	7.8E-08
Indeno(1,2,3-cd)pyrene	7.7E-01	7.3E-01	0.13	1.5E-07	1.7E-08
Chromium Total	1.8E+01	1.3E-02	NA	NA	NA

Table J-19
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1f	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.9E+00	1.1E-04	4.0E-11	4.2E-11
Benzo(a)pyrene	1.0E+00	1.1E-03	2.3E-10	2.4E-10
Benzo(b)fluoranthene	2.1E+00	1.1E-04	4.5E-11	4.8E-11
Benzo(k)fluoranthene	2.0E+00	1.1E-04	4.4E-11	4.6E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	3.5E-01	1.2E-03	8.2E-11	8.7E-11
Indeno(1,2,3-cd)pyrene	7.7E-01	1.1E-04	1.7E-11	1.7E-11
Chromium Total	1.8E+01	8.4E-02	3.0E-07	3.2E-07

Table J-19
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.5E-06	3.6E-07	4.0E-11	**2.8E-06**	2.8E-07	4.1E-08	4.2E-11	**3.2E-07**	**3.2E-06**
Benzo(a)pyrene	1.4E-05	2.0E-06	2.3E-10	**1.6E-05**	1.6E-06	2.3E-07	2.4E-10	**1.8E-06**	**1.8E-05**
Benzo(b)fluoranthene	2.8E-06	4.1E-07	4.5E-11	**3.2E-06**	3.2E-07	4.7E-08	4.8E-11	**3.6E-07**	**3.6E-06**
Benzo(k)fluoranthene	2.7E-07	4.0E-08	4.4E-11	**3.1E-07**	3.1E-08	4.5E-09	4.6E-11	**3.5E-08**	**3.5E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	4.7E-06	6.8E-07	8.2E-11	**5.4E-06**	5.3E-07	7.8E-08	8.7E-11	**6.0E-07**	**6.0E-06**
Indeno(1,2,3-cd)pyrene	1.0E-06	1.5E-07	1.7E-11	**1.2E-06**	1.2E-07	1.7E-08	1.7E-11	**1.3E-07**	**1.3E-06**
Chromium Total	1.7E-05	NA	3.0E-07	**1.7E-05**	1.9E-06	NA	3.2E-07	**2.2E-06**	**1.9E-05**

Table J-20
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2f	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<16**
Benzo(a)anthracene	1.6E+00	7.3E-01	2.1E-06	2.4E-07
Benzo(a)pyrene	1.3E+00	7.3E+00	1.8E-05	2.0E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	2.4E-06	2.7E-07
Benzo(k)fluoranthene	1.7E+00	7.3E-02	2.3E-07	2.6E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	4.3E-06	4.9E-07
Indeno(1,2,3-cd)pyrene	7.2E-01	7.3E-01	9.6E-07	1.1E-07
Chromium Total	1.1E+02	5.0E-01	9.7E-05	1.1E-05

Table J-20
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2f	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<16**
Benzo(a)anthracene	1.6E+00	7.3E-01	0.13	3.1E-07	3.6E-08
Benzo(a)pyrene	1.3E+00	7.3E+00	0.13	2.6E-06	3.0E-07
Benzo(b)fluoranthene	1.8E+00	7.3E-01	0.13	3.5E-07	4.0E-08
Benzo(k)fluoranthene	1.7E+00	7.3E-02	0.13	3.4E-08	3.9E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	3.3E-01	7.3E+00	0.13	6.3E-07	7.2E-08
Indeno(1,2,3-cd)pyrene	7.2E-01	7.3E-01	0.13	1.4E-07	1.6E-08
Chromium Total	1.1E+02	1.3E-02	NA	NA	NA

Table J-20
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2f	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<16**
Benzo(a)anthracene	1.6E+00	1.1E-04	3.5E-11	3.6E-11
Benzo(a)pyrene	1.3E+00	1.1E-03	2.9E-10	3.0E-10
Benzo(b)fluoranthene	1.8E+00	1.1E-04	3.9E-11	4.1E-11
Benzo(k)fluoranthene	1.7E+00	1.1E-04	3.8E-11	3.9E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	3.3E-01	1.2E-03	7.6E-11	8.0E-11
Indeno(1,2,3-cd)pyrene	7.2E-01	1.1E-04	1.5E-11	1.6E-11
Chromium Total	1.1E+02	8.4E-02	1.7E-06	1.8E-06

Table J-20
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area F
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.1E-06	3.1E-07	3.5E-11	**2.5E-06**	2.4E-07	3.6E-08	3.6E-11	**2.8E-07**	**2.7E-06**
Benzo(a)pyrene	1.8E-05	2.6E-06	2.9E-10	**2.0E-05**	2.0E-06	3.0E-07	3.0E-10	**2.3E-06**	**2.3E-05**
Benzo(b)fluoranthene	2.4E-06	3.5E-07	3.9E-11	**2.8E-06**	2.7E-07	4.0E-08	4.1E-11	**3.1E-07**	**3.1E-06**
Benzo(k)fluoranthene	2.3E-07	3.4E-08	3.8E-11	**2.7E-07**	2.6E-08	3.9E-09	3.9E-11	**3.0E-08**	**3.0E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	4.3E-06	6.3E-07	7.6E-11	**5.0E-06**	4.9E-07	7.2E-08	8.0E-11	**5.6E-07**	**5.5E-06**
Indeno(1,2,3-cd)pyrene	9.6E-07	1.4E-07	1.5E-11	**1.1E-06**	1.1E-07	1.6E-08	1.6E-11	**1.2E-07**	**1.2E-06**
Chromium Total	9.7E-05	NA	1.7E-06	**9.9E-05**	1.1E-05	NA	1.8E-06	**1.3E-05**	**1.1E-04**

Table J-21
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2j			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.5E+00	7.3E-01	4.1E-06	2.5E-06	6.6E-07	3.1E-07
Benzo(a)pyrene	1.2E+00	7.3E+00	3.3E-05	2.0E-05	5.3E-06	2.5E-06
Benzo(b)fluoranthene	1.4E+00	7.3E-01	3.8E-06	2.3E-06	6.1E-07	2.9E-07
Benzo(k)fluoranthene	1.1E+00	7.3E-02	2.9E-07	1.7E-07	4.6E-08	2.1E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.8E-01	7.3E+00	7.5E-06	4.5E-06	1.2E-06	5.7E-07
Indeno(1,2,3-cd)pyrene	1.0E+00	7.3E-01	2.7E-06	1.6E-06	4.3E-07	2.0E-07
Chromium Total	3.8E+03	5.0E-01	7.0E-03	4.2E-03	1.1E-03	5.2E-04

Table J-21
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2j			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.5E+00	7.3E-01	0.13	1.5E-06	9.0E-07	3.4E-07	1.6E-07
Benzo(a)pyrene	1.2E+00	7.3E+00	0.13	1.2E-05	7.1E-06	2.7E-06	1.3E-06
Benzo(b)fluoranthene	1.4E+00	7.3E-01	0.13	1.4E-06	8.3E-07	3.2E-07	1.5E-07
Benzo(k)fluoranthene	1.1E+00	7.3E-02	0.13	1.0E-07	6.2E-08	2.4E-08	1.1E-08
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.8E-01	7.3E+00	0.13	2.7E-06	1.6E-06	6.3E-07	2.9E-07
Indeno(1,2,3-cd)pyrene	1.0E+00	7.3E-01	0.13	9.7E-07	5.8E-07	2.2E-07	1.0E-07
Chromium Total	3.8E+03	1.3E-02	NA	NA	NA	NA	NA

Table J-21
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.2j			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	1.5E+00	1.1E-04	3.3E-11	2.0E-11	5.0E-11	2.3E-11
Benzo(a)pyrene	1.2E+00	1.1E-03	2.6E-10	1.6E-10	4.0E-10	1.8E-10
Benzo(b)fluoranthene	1.4E+00	1.1E-04	3.1E-11	1.8E-11	4.6E-11	2.1E-11
Benzo(k)fluoranthene	1.1E+00	1.1E-04	2.3E-11	1.4E-11	3.5E-11	1.6E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	2.8E-01	1.2E-03	6.6E-11	4.0E-11	1.0E-10	4.7E-11
Indeno(1,2,3-cd)pyrene	1.0E+00	1.1E-04	2.2E-11	1.3E-11	3.2E-11	1.5E-11
Chromium Total	3.8E+03	8.4E-02	6.3E-05	3.8E-05	9.4E-05	4.4E-05

Table J-21
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	6.6E-06	2.4E-06	5.3E-11	**9.0E-06**	9.7E-07	5.0E-07	7.3E-11	**1.5E-06**	**1.0E-05**
Benzo(a)pyrene	5.2E-05	1.9E-05	4.2E-10	**7.1E-05**	7.7E-06	4.0E-06	5.8E-10	**1.2E-05**	**8.3E-05**
Benzo(b)fluoranthene	6.1E-06	2.2E-06	4.9E-11	**8.3E-06**	9.0E-07	4.6E-07	6.7E-11	**1.4E-06**	**9.7E-06**
Benzo(k)fluoranthene	4.6E-07	1.7E-07	3.7E-11	**6.2E-07**	6.7E-08	3.5E-08	5.1E-11	**1.0E-07**	**7.2E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	1.2E-05	4.4E-06	1.1E-10	**1.6E-05**	1.8E-06	9.2E-07	1.5E-10	**2.7E-06**	**1.9E-05**
Indeno(1,2,3-cd)pyrene	4.3E-06	1.6E-06	3.4E-11	**5.8E-06**	6.3E-07	3.3E-07	4.7E-11	**9.5E-07**	**6.8E-06**
Chromium Total	1.1E-02	NA	1.0E-04	**1.1E-02**	1.6E-03	NA	1.4E-04	**1.8E-03**	**1.3E-02**

Table J-22
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
Cs	mg/kg	See Table A-3.1j
IRS	mg/day	100
FI	unitless	1
OABS	unitless	1
CF	kg/mg	1E-06
EF	days/year	78
ED	years	10
BW	kg	39
AT	days	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1
ADAF	unitless	3

			Incidential Soil Ingestion Risks
COPC	**Cs**	**CSFo**	**6-<16**
Benzo(a)anthracene	2.2E+00	7.3E-01	3.8E-07
Benzo(a)pyrene	1.6E+00	7.3E+00	2.7E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	3.1E-07
Benzo(k)fluoranthene	1.4E+00	7.3E-02	2.4E-08
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	8.5E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	1.9E-07
Chromium Total	1.4E+04	5.0E-01	1.6E-03

Table J-22
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
Cs	mg/kg	See Table A-3.1j
SA	cm^2	4184
SSAF	mg/cm^2-event	0.2
DABS	unitless	See Table H-1
EV	events/day	1
EF	days/year	78
ED	years	10
CF	kg/mg	1E-06
BW	kg	39
AT	days	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1
ADAF	unitless	3

				Dermal Contact Risks
COPC	**Cs**	**CSFd**	**DABS**	**6-<16**
Benzo(a)anthracene	2.2E+00	7.3E-01	0.13	4.1E-07
Benzo(a)pyrene	1.6E+00	7.3E+00	0.13	2.9E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	0.13	3.4E-07
Benzo(k)fluoranthene	1.4E+00	7.3E-02	0.13	2.6E-08
Chrysene	-	7.3E-03	0.13	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	0.13	9.2E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	0.13	2.1E-07
Chromium Total	1.4E+04	1.3E-02	NA	NA

Table J-22
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$Risk = Cs \times 1/PEF \sum_{i} \frac{ET \times EF \times ED \times CF}{AT} \times URFi \times ADAF$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
Cs	mg/kg	See Table A-3.1j
PEF	m^3/kg	1.40E+09
ET	hours/day	4
EF	days/year	78
ED	years	10
CF	µg/mg	1000
AT	hours	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2
ADAF	unitless	3

			Inhalation of Particulate Risks
COPC	**Cs**	**URFi**	**6-<16**
Benzo(a)anthracene	2.2E+00	1.1E-04	2.7E-12
Benzo(a)pyrene	1.6E+00	1.1E-03	1.9E-11
Benzo(b)fluoranthene	1.8E+00	1.1E-04	2.2E-12
Benzo(k)fluoranthene	1.4E+00	1.1E-04	1.7E-12
Chrysene	-	1.1E-05	NA
Dibenz(a,h)anthracene	5.0E-01	1.2E-03	6.5E-12
Indeno(1,2,3-cd)pyrene	1.1E+00	1.1E-04	1.3E-12
Chromium Total	1.4E+04	8.4E-02	1.3E-05

Table J-22
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

COPC	Total Cancer Risks			
	Adolescent			
	Soil Ingestion	Dermal Contact	Inhalation	Total
Benzo(a)anthracene	3.8E-07	4.1E-07	2.7E-12	**7.9E-07**
Benzo(a)pyrene	2.7E-06	2.9E-06	1.9E-11	**5.6E-06**
Benzo(b)fluoranthene	3.1E-07	3.4E-07	2.2E-12	**6.6E-07**
Benzo(k)fluoranthene	2.4E-08	2.6E-08	1.7E-12	**5.0E-08**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	8.5E-07	9.2E-07	6.5E-12	**1.8E-06**
Indeno(1,2,3-cd)pyrene	1.9E-07	2.1E-07	1.3E-12	**3.9E-07**
Chromium Total	1.6E-03	NA	1.3E-05	**1.6E-03**

Table J-23
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1j			
IRS	mg/day	200	200	100	100
FI	unitless	1	1	1	1
OABS	unitless	1	1	1	1
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
EF	days/year	350	350	350	350
ED	years	2	4	10	14
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

			Incidential Soil Ingestion Risks			
COPC	**Cs**	**CSFo**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	2.2E+00	7.3E-01	5.9E-06	3.6E-06	9.5E-07	4.4E-07
Benzo(a)pyrene	1.6E+00	7.3E+00	4.2E-05	2.5E-05	6.7E-06	3.1E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	4.9E-06	2.9E-06	7.9E-07	3.7E-07
Benzo(k)fluoranthene	1.4E+00	7.3E-02	3.7E-07	2.2E-07	5.9E-08	2.8E-08
Chrysene	-	7.3E-03	NA	NA	NA	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	1.3E-05	7.9E-06	2.1E-06	9.9E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	2.9E-06	1.8E-06	4.7E-07	2.2E-07
Chromium Total	1.4E+04	5.0E-01	2.5E-02	1.5E-02	4.1E-03	1.9E-03

Table J-23
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1j			
SA	cm^2	2800	2800	5700	5700
SSAF	mg/cm^2-event	0.2	0.2	0.07	0.07
DABS	unitless	See Table H-1			
EV	events/day	1	1	1	1
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	kg/mg	1E-06	1E-06	1E-06	1E-06
BW	kg	15	15	70	70
AT	days	25550	25550	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1			
ADAF	unitless	10	3	3	1

				Dermal Contact Risks			
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	2.2E+00	7.3E-01	0.13	2.2E-06	1.3E-06	4.9E-07	2.3E-07
Benzo(a)pyrene	1.6E+00	7.3E+00	0.13	1.5E-05	9.1E-06	3.5E-06	1.6E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	0.13	1.8E-06	1.1E-06	4.1E-07	1.9E-07
Benzo(k)fluoranthene	1.4E+00	7.3E-02	0.13	1.3E-07	8.1E-08	3.1E-08	1.4E-08
Chrysene	-	7.3E-03	0.13	NA	NA	NA	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	0.13	4.8E-06	2.9E-06	1.1E-06	5.1E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	0.13	1.1E-06	6.4E-07	2.4E-07	1.1E-07
Chromium Total	1.4E+04	1.3E-02	NA	NA	NA	NA	NA

Table J-23
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)					
Parameter	**Units**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Cs	mg/kg	See Table A-3.1j			
PEF	m^3/kg	1.40E+09	1.40E+09	1.40E+09	1.40E+09
ET	hours/day	24	24	24	24
EF	days/year	350	350	350	350
ED	years	2	4	10	14
CF	µg/mg	1000	1000	1000	1000
AT	hours	613200	613200	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2			
ADAF	unitless	10	3	3	1

			Inhalation of Particulate Risks			
COPC	**Cs**	**URFi**	**0-<2**	**2-<6**	**6-<16**	**16-<30**
Benzo(a)anthracene	2.2E+00	1.1E-04	4.8E-11	2.9E-11	7.2E-11	3.3E-11
Benzo(a)pyrene	1.6E+00	1.1E-03	3.4E-10	2.0E-10	5.1E-10	2.4E-10
Benzo(b)fluoranthene	1.8E+00	1.1E-04	3.9E-11	2.4E-11	5.9E-11	2.8E-11
Benzo(k)fluoranthene	1.4E+00	1.1E-04	3.0E-11	1.8E-11	4.5E-11	2.1E-11
Chrysene	-	1.1E-05	NA	NA	NA	NA
Dibenz(a,h)anthracene	5.0E-01	1.2E-03	1.2E-10	7.0E-11	1.7E-10	8.2E-11
Indeno(1,2,3-cd)pyrene	1.1E+00	1.1E-04	2.4E-11	1.4E-11	3.6E-11	1.7E-11
Chromium Total	1.4E+04	8.4E-02	2.3E-04	1.4E-04	3.4E-04	1.6E-04

Table J-23
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	9.5E-06	3.4E-06	7.6E-11	**1.3E-05**	1.4E-06	7.2E-07	1.1E-10	**2.1E-06**	**1.5E-05**
Benzo(a)pyrene	6.7E-05	2.4E-05	5.4E-10	**9.1E-05**	9.9E-06	5.1E-06	7.4E-10	**1.5E-05**	**1.1E-04**
Benzo(b)fluoranthene	7.8E-06	2.8E-06	6.3E-11	**1.1E-05**	1.2E-06	6.0E-07	8.7E-11	**1.8E-06**	**1.2E-05**
Benzo(k)fluoranthene	5.9E-07	2.1E-07	4.8E-11	**8.0E-07**	8.7E-08	4.5E-08	6.5E-11	**1.3E-07**	**9.4E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	2.1E-05	7.7E-06	1.9E-10	**2.9E-05**	3.1E-06	1.6E-06	2.6E-10	**4.7E-06**	**3.4E-05**
Indeno(1,2,3-cd)pyrene	4.7E-06	1.7E-06	3.8E-11	**6.4E-06**	6.9E-07	3.6E-07	5.2E-11	**1.1E-06**	**7.5E-06**
Chromium Total	4.1E-02	NA	3.7E-04	**4.1E-02**	6.0E-03	NA	5.0E-04	**6.5E-03**	**4.8E-02**

Table J-24
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Sediment
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Sediment Ingestion Risk

Where:

$$\text{Risk} = \text{CSd} \times \sum_{i} \frac{\text{IR-Sd} \times \text{FI} \times \text{OABS} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}} \times \text{CSFo} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
CSd	mg/kg	See Table A-3.3
IR-Sd	mg/day	100
FI	unitless	1
OABS	unitless	1
CF	kg/mg	1E-06
EF	days/year	18
ED	years	10
BW	kg	39
AT	days	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1
ADAF	unitless	3

			Incidential Sediment Ingestion Risks
COPC	**CSd**	**CSFo**	**6-<16**
Benzo(a)anthracene	6.9E+00	7.3E-01	2.7E-07
Benzo(a)pyrene	7.2E+00	7.3E+00	2.8E-06
Benzo(b)fluoranthene	1.1E+01	7.3E-01	4.4E-07
Benzo(k)fluoranthene	3.3E+00	7.3E-02	1.3E-08
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	1.3E+00	7.3E+00	5.1E-07
Indeno(1,2,3-cd)pyrene	6.3E+00	7.3E-01	2.5E-07
Chromium Total	2.9E+02	5.0E-01	7.9E-06

Table J-24
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Sediment
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{CSd x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
CSd	mg/kg	See Table A-3.3
SA	cm^2	4184
SSAF	mg/cm^2-event	0.2
DABS	unitless	See Table H-1
EV	events/day	1
EF	days/year	18
ED	years	10
CF	kg/mg	1E-06
BW	kg	39
AT	days	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1
ADAF	unitless	3

COPC	CSd	CSFd	DABS	Dermal Contact Risks 6-<16
Benzo(a)anthracene	6.9E+00	7.3E-01	0.13	3.0E-07
Benzo(a)pyrene	7.2E+00	7.3E+00	0.13	3.1E-06
Benzo(b)fluoranthene	1.1E+01	7.3E-01	0.13	4.7E-07
Benzo(k)fluoranthene	3.3E+00	7.3E-02	0.13	1.4E-08
Chrysene	-	7.3E-03	0.13	NA
Dibenz(a,h)anthracene	1.3E+00	7.3E+00	0.13	5.6E-07
Indeno(1,2,3-cd)pyrene	6.3E+00	7.3E-01	0.13	2.7E-07
Chromium Total	2.9E+02	1.3E-02	NA	NA

Table J-24
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Sediment
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

COPC	Total Cancer Risks		
	Adolescent		
	Sediment Ingestion	Dermal Contact	Total
Benzo(a)anthracene	2.7E-07	3.0E-07	**5.7E-07**
Benzo(a)pyrene	2.8E-06	3.1E-06	**5.9E-06**
Benzo(b)fluoranthene	4.4E-07	4.7E-07	**9.1E-07**
Benzo(k)fluoranthene	1.3E-08	1.4E-08	**2.7E-08**
Chrysene	NA	NA	**NA**
Dibenz(a,h)anthracene	5.1E-07	5.6E-07	**1.1E-06**
Indeno(1,2,3-cd)pyrene	2.5E-07	2.7E-07	**5.2E-07**
Chromium Total	7.9E-06	NA	**7.9E-06**

Table J-25
Calculations of RME Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Water
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \sum_{i} \frac{DA_{event} \times SA \times EV \times EF \times ED}{BW \times AT} \times CSFd \times ADAF$$

Equations for DA_{event} for inorganics:
$DA_{event} = CW \times Kp \times t_{event} \times CF$

Equations for DA_{event} for organics:
If $t_{event} < t^*$

$$DA_{event} = 2FA \times Kp \times CW \times CF \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}}$$

If $t_{event} > t^*$

$$DA_{event} = FA \times Kp \times CW \times CF \times \left[\frac{t_{event}}{1+B} + 2\tau_{event}\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
DA_{event}	mg/cm^2-event	See Table H-2
SA	cm^2	4184
EV	events/day	1
EF	days/year	18
ED	years	10
BW	kg	39
AT	days	25550
CW	µg/L	See Table A-3.4
Kp	cm/hr	See Table H-2
t_{event}	hr/event	2
CF	mg-L/µg-cm^3	1.00E-03
FA	unitless	See Table H-2
t*	hour	See Table H-2
τ_{event}	hr/event	See Table H-2
B	unitless	See Table H-2
CSFd	(mg/kg-day)$^{-1}$	See Table A-6.1
ADAF	unitless	3

			Dermal Contact Risks
COPC	**DA_{event}**	**CSFd**	**6-<16**
Benzo(a)anthracene	1.6E-07	7.3E-01	2.6E-07
Benzo(a)pyrene	3.1E-07	7.3E+00	5.2E-06
Benzo(b)fluoranthene	5.0E-07	7.3E-01	8.3E-07
Benzo(k)fluoranthene	-	7.3E-02	NA
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	-	7.3E+00	NA
Indeno(1,2,3-cd)pyrene	3.2E-07	7.3E-01	5.3E-07
Chromium Total	8.6E-08	1.3E-02	2.4E-09

Table J-26
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2j	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.5E+00	7.3E-01	2.1E-06	2.3E-07
Benzo(a)pyrene	1.2E+00	7.3E+00	1.6E-05	1.8E-06
Benzo(b)fluoranthene	1.4E+00	7.3E-01	1.9E-06	2.1E-07
Benzo(k)fluoranthene	1.1E+00	7.3E-02	1.4E-07	1.6E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	2.8E-01	7.3E+00	3.8E-06	4.2E-07
Indeno(1,2,3-cd)pyrene	1.0E+00	7.3E-01	1.3E-06	1.5E-07
Chromium Total	3.8E+03	5.0E-01	3.5E-03	3.9E-04

Table J-26
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs} \times \sum_{i} \frac{\text{SA} \times \text{SSAF} \times \text{DABS} \times \text{EV} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{BW} \times \text{AT}} \times \text{CSFd} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2j	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.5E+00	7.3E-01	0.13	3.0E-07	3.4E-08
Benzo(a)pyrene	1.2E+00	7.3E+00	0.13	2.4E-06	2.7E-07
Benzo(b)fluoranthene	1.4E+00	7.3E-01	0.13	2.8E-07	3.2E-08
Benzo(k)fluoranthene	1.1E+00	7.3E-02	0.13	2.1E-08	2.4E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	2.8E-01	7.3E+00	0.13	5.5E-07	6.3E-08
Indeno(1,2,3-cd)pyrene	1.0E+00	7.3E-01	0.13	1.9E-07	2.2E-08
Chromium Total	3.8E+03	1.3E-02	NA	NA	NA

Table J-26
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.2j	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	1.5E+00	1.1E-04	3.3E-11	3.5E-11
Benzo(a)pyrene	1.2E+00	1.1E-03	2.6E-10	2.8E-10
Benzo(b)fluoranthene	1.4E+00	1.1E-04	3.1E-11	3.2E-11
Benzo(k)fluoranthene	1.1E+00	1.1E-04	2.3E-11	2.4E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	2.8E-01	1.2E-03	6.6E-11	7.0E-11
Indeno(1,2,3-cd)pyrene	1.0E+00	1.1E-04	2.2E-11	2.3E-11
Chromium Total	3.8E+03	8.4E-02	6.3E-05	6.6E-05

Table J-26
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Aggregate Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	2.1E-06	3.0E-07	3.3E-11	**2.4E-06**	2.3E-07	3.4E-08	3.5E-11	**2.7E-07**	**2.6E-06**
Benzo(a)pyrene	1.6E-05	2.4E-06	2.6E-10	**1.9E-05**	1.8E-06	2.7E-07	2.8E-10	**2.1E-06**	**2.1E-05**
Benzo(b)fluoranthene	1.9E-06	2.8E-07	3.1E-11	**2.2E-06**	2.1E-07	3.2E-08	3.2E-11	**2.5E-07**	**2.4E-06**
Benzo(k)fluoranthene	1.4E-07	2.1E-08	2.3E-11	**1.6E-07**	1.6E-08	2.4E-09	2.4E-11	**1.8E-08**	**1.8E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	3.8E-06	5.5E-07	6.6E-11	**4.3E-06**	4.2E-07	6.3E-08	7.0E-11	**4.9E-07**	**4.8E-06**
Indeno(1,2,3-cd)pyrene	1.3E-06	1.9E-07	2.2E-11	**1.5E-06**	1.5E-07	2.2E-08	2.3E-11	**1.7E-07**	**1.7E-06**
Chromium Total	3.5E-03	NA	6.3E-05	**3.6E-03**	3.9E-04	NA	6.6E-05	**4.6E-04**	**4.0E-03**

Table J-27
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
Cs	mg/kg	See Table A-3.1j
IRS	mg/day	50
FI	unitless	1
OABS	unitless	1
CF	kg/mg	1E-06
EF	days/year	18
ED	years	10
BW	kg	39
AT	days	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1
ADAF	unitless	3

			Incidential Soil Ingestion Risks
COPC	**Cs**	**CSFo**	**6-<16**
Benzo(a)anthracene	2.2E+00	7.3E-01	4.4E-08
Benzo(a)pyrene	1.6E+00	7.3E+00	3.1E-07
Benzo(b)fluoranthene	1.8E+00	7.3E-01	3.6E-08
Benzo(k)fluoranthene	1.4E+00	7.3E-02	2.7E-09
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	9.8E-08
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	2.2E-08
Chromium Total	1.4E+04	5.0E-01	1.9E-04

Table J-27
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
Cs	mg/kg	See Table A-3.1j
SA	cm^2	4184
SSAF	mg/cm^2-event	0.04
DABS	unitless	See Table H-1
EV	events/day	1
EF	days/year	18
ED	years	10
CF	kg/mg	1E-06
BW	kg	39
AT	days	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1
ADAF	unitless	3

				Dermal Contact Risks
COPC	**Cs**	**CSFd**	**DABS**	**6-<16**
Benzo(a)anthracene	2.2E+00	7.3E-01	0.13	1.9E-08
Benzo(a)pyrene	1.6E+00	7.3E+00	0.13	1.3E-07
Benzo(b)fluoranthene	1.8E+00	7.3E-01	0.13	1.6E-08
Benzo(k)fluoranthene	1.4E+00	7.3E-02	0.13	1.2E-09
Chrysene	-	7.3E-03	0.13	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	0.13	4.3E-08
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	0.13	9.5E-09
Chromium Total	1.4E+04	1.3E-02	NA	NA

Table J-27
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
Cs	mg/kg	See Table A-3.1j
PEF	m^3/kg	1.40E+09
ET	hours/day	2
EF	days/year	18
ED	years	10
CF	µg/mg	1000
AT	hours	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2
ADAF	unitless	3

			Inhalation of Particulate Risks
COPC	**Cs**	**URFi**	**6-<16**
Benzo(a)anthracene	2.2E+00	1.1E-04	3.1E-13
Benzo(a)pyrene	1.6E+00	1.1E-03	2.2E-12
Benzo(b)fluoranthene	1.8E+00	1.1E-04	2.5E-13
Benzo(k)fluoranthene	1.4E+00	1.1E-04	1.9E-13
Chrysene	-	1.1E-05	NA
Dibenz(a,h)anthracene	5.0E-01	1.2E-03	7.5E-13
Indeno(1,2,3-cd)pyrene	1.1E+00	1.1E-04	1.5E-13
Chromium Total	1.4E+04	8.4E-02	1.5E-06

Table J-27
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

COPC	Total Cancer Risks			
	Adolescent			
	Soil Ingestion	Dermal Contact	Inhalation	Total
Benzo(a)anthracene	4.4E-08	1.9E-08	3.1E-13	**6.3E-08**
Benzo(a)pyrene	3.1E-07	1.3E-07	2.2E-12	**4.5E-07**
Benzo(b)fluoranthene	3.6E-08	1.6E-08	2.5E-13	**5.2E-08**
Benzo(k)fluoranthene	2.7E-09	1.2E-09	1.9E-13	**3.9E-09**
Chrysene	NA	NA	NA	**NA**
Dibenz(a,h)anthracene	9.8E-08	4.3E-08	7.5E-13	**1.4E-07**
Indeno(1,2,3-cd)pyrene	2.2E-08	9.5E-09	1.5E-13	**3.1E-08**
Chromium Total	1.9E-04	NA	1.5E-06	**1.9E-04**

Table J-28
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Soil Ingestion Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{IRS x FI x OABS x CF x EF x ED}}{\text{BW x AT}} \text{ x CSFo x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1j	
IRS	mg/day	100	50
FI	unitless	1	1
OABS	unitless	1	1
CF	kg/mg	1E-06	1E-06
EF	days/year	350	350
ED	years	2	7
BW	kg	15	70
AT	days	25550	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

			Incidential Soil Ingestion Risks	
COPC	**Cs**	**CSFo**	**0-<2**	**6-<13**
Benzo(a)anthracene	2.2E+00	7.3E-01	3.0E-06	3.3E-07
Benzo(a)pyrene	1.6E+00	7.3E+00	2.1E-05	2.4E-06
Benzo(b)fluoranthene	1.8E+00	7.3E-01	2.4E-06	2.8E-07
Benzo(k)fluoranthene	1.4E+00	7.3E-02	1.8E-07	2.1E-08
Chrysene	-	7.3E-03	NA	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	6.6E-06	7.4E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	1.5E-06	1.7E-07
Chromium Total	1.4E+04	5.0E-01	1.3E-02	1.4E-03

Table J-28
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{Cs x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1j	
SA	cm^2	2800	5700
SSAF	mg/cm^2-event	0.04	0.01
DABS	unitless	See Table H-1	
EV	events/day	1	1
EF	days/year	350	350
ED	years	2	7
CF	kg/mg	1E-06	1E-06
BW	kg	15	70
AT	days	25550	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1	
ADAF	unitless	10	3

				Dermal Contact Risks	
COPC	**Cs**	**CSFd**	**DABS**	**0-<2**	**6-<13**
Benzo(a)anthracene	2.2E+00	7.3E-01	0.13	4.3E-07	4.9E-08
Benzo(a)pyrene	1.6E+00	7.3E+00	0.13	3.0E-06	3.5E-07
Benzo(b)fluoranthene	1.8E+00	7.3E-01	0.13	3.6E-07	4.1E-08
Benzo(k)fluoranthene	1.4E+00	7.3E-02	0.13	2.7E-08	3.1E-09
Chrysene	-	7.3E-03	0.13	NA	NA
Dibenz(a,h)anthracene	5.0E-01	7.3E+00	0.13	9.6E-07	1.1E-07
Indeno(1,2,3-cd)pyrene	1.1E+00	7.3E-01	0.13	2.1E-07	2.4E-08
Chromium Total	1.4E+04	1.3E-02	NA	NA	NA

Table J-28
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Inhalation of Particulate Risk

Where:

$$\text{Risk} = \text{Cs} \times 1/\text{PEF} \sum_{i} \frac{\text{ET} \times \text{EF} \times \text{ED} \times \text{CF}}{\text{AT}} \times \text{URFi} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)			
Parameter	**Units**	**0-<2**	**6-<13**
Cs	mg/kg	See Table A-3.1j	
PEF	m^3/kg	1.40E+09	1.40E+09
ET	hours/day	24	24
EF	days/year	350	350
ED	years	2	7
CF	µg/mg	1000	1000
AT	hours	613200	613200
URFi	$(\mu g/m^3)^{-1}$	See Table A-6.2	
ADAF	unitless	10	3

			Inhalation of Particulate Risks	
COPC	**Cs**	**URFi**	**0-<2**	**6-<13**
Benzo(a)anthracene	2.2E+00	1.1E-04	4.8E-11	5.0E-11
Benzo(a)pyrene	1.6E+00	1.1E-03	3.4E-10	3.5E-10
Benzo(b)fluoranthene	1.8E+00	1.1E-04	3.9E-11	4.1E-11
Benzo(k)fluoranthene	1.4E+00	1.1E-04	3.0E-11	3.1E-11
Chrysene	-	1.1E-05	NA	NA
Dibenz(a,h)anthracene	5.0E-01	1.2E-03	1.2E-10	1.2E-10
Indeno(1,2,3-cd)pyrene	1.1E+00	1.1E-04	2.4E-11	2.5E-11
Chromium Total	1.4E+04	8.4E-02	2.3E-04	2.4E-04

Table J-28
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Future Resident Exposure to Surface Soil
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

	Total Cancer Risks								
	Child				Adult				Lifetime Cancer Risks
COPC	Soil Ingestion	Dermal Contact	Inhalation	Total	Soil Ingestion	Dermal Contact	Inhalation	Total	
Benzo(a)anthracene	3.0E-06	4.3E-07	4.8E-11	**3.4E-06**	3.3E-07	4.9E-08	5.0E-11	**3.8E-07**	**3.8E-06**
Benzo(a)pyrene	2.1E-05	3.0E-06	3.4E-10	**2.4E-05**	2.4E-06	3.5E-07	3.5E-10	**2.7E-06**	**2.7E-05**
Benzo(b)fluoranthene	2.4E-06	3.6E-07	3.9E-11	**2.8E-06**	2.8E-07	4.1E-08	4.1E-11	**3.2E-07**	**3.1E-06**
Benzo(k)fluoranthene	1.8E-07	2.7E-08	3.0E-11	**2.1E-07**	2.1E-08	3.1E-09	3.1E-11	**2.4E-08**	**2.4E-07**
Chrysene	NA	NA	NA	**NA**	NA	NA	NA	**NA**	**NA**
Dibenz(a,h)anthracene	6.6E-06	9.6E-07	1.2E-10	**7.6E-06**	7.4E-07	1.1E-07	1.2E-10	**8.5E-07**	**8.4E-06**
Indeno(1,2,3-cd)pyrene	1.5E-06	2.1E-07	2.4E-11	**1.7E-06**	1.7E-07	2.4E-08	2.5E-11	**1.9E-07**	**1.9E-06**
Chromium Total	1.3E-02	NA	2.3E-04	**1.3E-02**	1.4E-03	NA	2.4E-04	**1.7E-03**	**1.5E-02**

Table J-29
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Sediment
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Incidental Sediment Ingestion Risk

Where:

$$\text{Risk} = \text{CSd} \times \sum_{i} \frac{\text{IR-Sd} \times \text{FI} \times \text{OABS} \times \text{CF} \times \text{EF} \times \text{ED}}{\text{BW} \times \text{AT}} \times \text{CSFo} \times \text{ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
CSd	mg/kg	See Table A-3.3
IR-Sd	mg/day	50
FI	unitless	1
OABS	unitless	1
CF	kg/mg	1E-06
EF	days/year	9
ED	years	10
BW	kg	39
AT	days	25550
CSFo	$(\text{mg/kg-day})^{-1}$	See Table A-6.1
ADAF	unitless	3

			Incidential Sediment Ingestion Risks
COPC	**CSd**	**CSFo**	**6-<16**
Benzo(a)anthracene	6.9E+00	7.3E-01	6.8E-08
Benzo(a)pyrene	7.2E+00	7.3E+00	7.1E-07
Benzo(b)fluoranthene	1.1E+01	7.3E-01	1.1E-07
Benzo(k)fluoranthene	3.3E+00	7.3E-02	3.3E-09
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	1.3E+00	7.3E+00	1.3E-07
Indeno(1,2,3-cd)pyrene	6.3E+00	7.3E-01	6.2E-08
Chromium Total	2.9E+02	5.0E-01	2.0E-06

Table J-29
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Sediment
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \text{CSd x} \sum_{i} \frac{\text{SA x SSAF x DABS x EV x EF x ED x CF}}{\text{BW x AT}} \text{ x CSFd x ADAF}$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
CSd	mg/kg	See Table A-3.3
SA	cm^2	4184
SSAF	mg/cm^2-event	0.04
DABS	unitless	See Table H-1
EV	events/day	1
EF	days/year	9
ED	years	10
CF	kg/mg	1E-06
BW	kg	39
AT	days	25550
CSFd	$(mg/kg\text{-}day)^{-1}$	See Table A-6.1
ADAF	unitless	3

COPC	CSd	CSFd	DABS	Dermal Contact Risks 6-<16
Benzo(a)anthracene	6.9E+00	7.3E-01	0.13	3.0E-08
Benzo(a)pyrene	7.2E+00	7.3E+00	0.13	3.1E-07
Benzo(b)fluoranthene	1.1E+01	7.3E-01	0.13	4.7E-08
Benzo(k)fluoranthene	3.3E+00	7.3E-02	0.13	1.4E-09
Chrysene	-	7.3E-03	0.13	NA
Dibenz(a,h)anthracene	1.3E+00	7.3E+00	0.13	5.6E-08
Indeno(1,2,3-cd)pyrene	6.3E+00	7.3E-01	0.13	2.7E-08
Chromium Total	2.9E+02	1.3E-02	NA	NA

Table J-29
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Sediment
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

	Total Cancer Risks		
	Adolescent		
COPC	**Sediment Ingestion**	**Dermal Contact**	**Total**
Benzo(a)anthracene	6.8E-08	3.0E-08	**9.8E-08**
Benzo(a)pyrene	7.1E-07	3.1E-07	**1.0E-06**
Benzo(b)fluoranthene	1.1E-07	4.7E-08	**1.6E-07**
Benzo(k)fluoranthene	3.3E-09	1.4E-09	**4.7E-09**
Chrysene	NA	NA	**NA**
Dibenz(a,h)anthracene	1.3E-07	5.6E-08	**1.8E-07**
Indeno(1,2,3-cd)pyrene	6.2E-08	2.7E-08	**8.9E-08**
Chromium Total	2.0E-06	NA	**2.0E-06**

Table J-30
Calculations of CTE Risks for COPCs with a Mutagenic Mode of Action - Current/Future Trespasser Exposure to Surface Water
Scovill Industrial Landfill Site - Risk Area J
Waterbury, Connecticut

Dermal Contact Risk

Where:

$$\text{Risk} = \sum_{i} \frac{DA_{event} \times SA \times EV \times EF \times ED}{BW \times AT} \times CSFd \times ADAF$$

Equations for DA_{event} for inorganics:
$DA_{event} = CW \times Kp \times t_{event} \times CF$

Equations for DA_{event} for organics:
If $t_{event} < t^*$

$$DA_{event} = 2FA \times Kp \times CW \times CF \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}}$$

If $t_{event} > t^*$

$$DA_{event} = FA \times Kp \times CW \times CF \times \left[\frac{t_{event}}{1+B} + 2\tau_{event}\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

Exposure Parameters (by age interval, i)		
Parameter	**Units**	**6-<16**
DA_{event}	mg/cm^2-event	See Table H-3
SA	cm^2	4184
EV	events/day	1
EF	days/year	9
ED	years	10
BW	kg	39
AT	days	25550
CW	µg/L	See Table A-3.4
Kp	cm/hr	See Table H-3
t_{event}	hr/event	1
CF	mg-L/µg-cm^3	1.00E-03
FA	unitless	See Table H-3
t*	hour	See Table H-3
τ_{event}	hr/event	See Table H-3
B	unitless	See Table H-3
CSFd	(mg/kg-day)$^{-1}$	See Table A-6.1
ADAF	unitless	3

			Dermal Contact Risks
COPC	**DA_{event}**	**CSFd**	**6-<16**
Benzo(a)anthracene	1.1E-07	7.3E-01	9.2E-08
Benzo(a)pyrene	2.2E-07	7.3E+00	1.8E-06
Benzo(b)fluoranthene	3.5E-07	7.3E-01	2.9E-07
Benzo(k)fluoranthene	-	7.3E-02	NA
Chrysene	-	7.3E-03	NA
Dibenz(a,h)anthracene	-	7.3E+00	NA
Indeno(1,2,3-cd)pyrene	2.3E-07	7.3E-01	1.9E-07
Chromium Total	4.3E-08	1.3E-02	6.1E-10

APPENDIX K

TABLE K-3D3

ADULT LEAD MODEL OUTPUTS - AREA D3 SURFACE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	153	153
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**	**1.7**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.9	5.2
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**0.6%**

TABLE K-4D3

ADULT LEAD MODEL OUTPUTS - AREA D3 AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	110	110
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**	**1.7**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.7	5.1
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**0.5%**

TABLE K-4E2

ADULT LEAD MODEL OUTPUTS - AREA E2 AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	125	125
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**	**1.7**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.8	5.1
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**0.5%**

LEAD MODEL FOR WINDOWS Version 1.1

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Model Version: 1.1 Build11
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

==========

******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550

5-6 0.580
6-7 0.590

Drinking Water Concentration: 4.000 µg Pb/L

******** Soil & Dust ********

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	137.000	137.000
1-2	137.000	137.000
2-3	137.000	137.000
3-4	137.000	137.000
4-5	137.000	137.000
5-6	137.000	137.000
6-7	137.000	137.000

******** Alternate Intake ********

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

******** Maternal Contribution: Infant Model ********

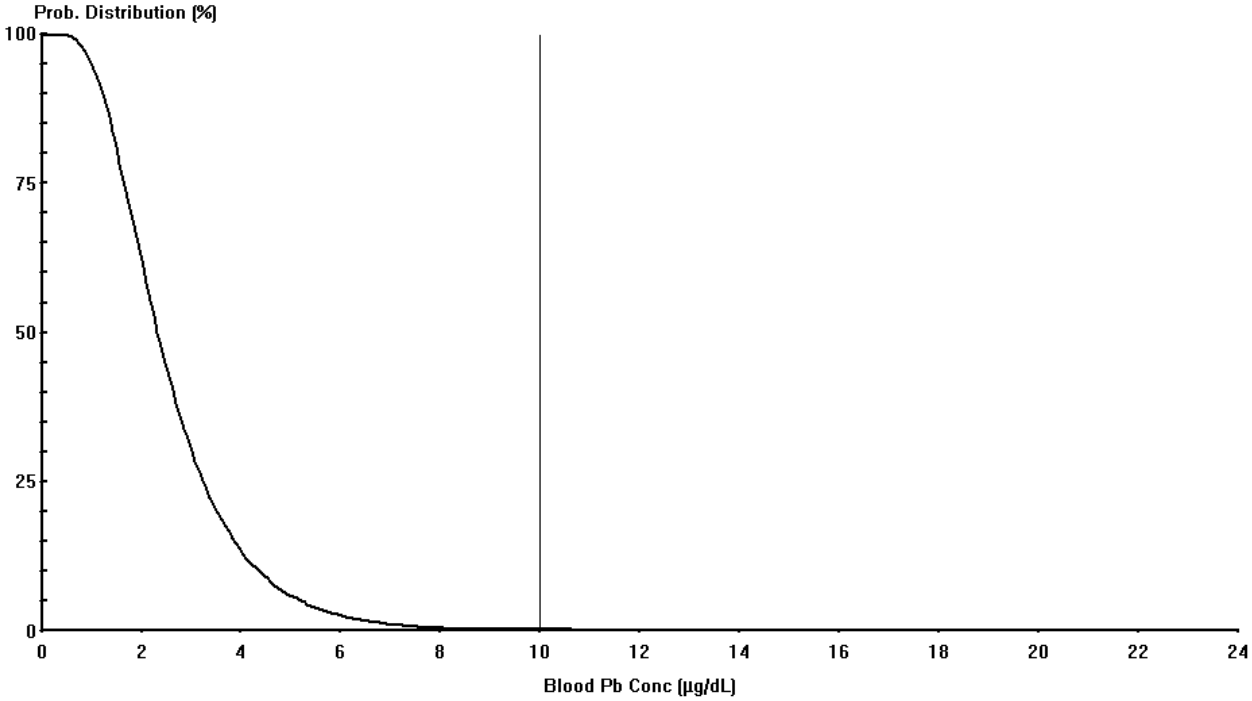
Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.070	0.000	0.379
1-2	0.034	0.921	0.000	0.940
2-3	0.062	1.009	0.000	0.985
3-4	0.067	0.974	0.000	1.012
4-5	0.067	0.944	0.000	1.065
5-6	0.093	0.997	0.000	1.128
6-7	0.093	1.083	0.000	1.151

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	3.309	4.780	2.6
1-2	5.215	7.110	2.9

2-3	5.257	7.314	2.7
3-4	5.298	7.351	2.6
4-5	3.978	6.053	2.2
5-6	3.598	5.817	1.8
6-7	3.407	5.734	1.7



Cutoff = 10.000 µg/dl
Geo Mean = 2.453
GSD = 1.600
% Above = 0.140

Age Range = 0 to 72 months

Run Mode = Research

LEAD MODEL FOR WINDOWS Version 1.1

==========

Model Version: 1.1 Build11
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

==========

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520

3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

****** Soil & Dust ******

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	145.000	145.000
1-2	145.000	145.000
2-3	145.000	145.000
3-4	145.000	145.000
4-5	145.000	145.000
5-6	145.000	145.000
6-7	145.000	145.000

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

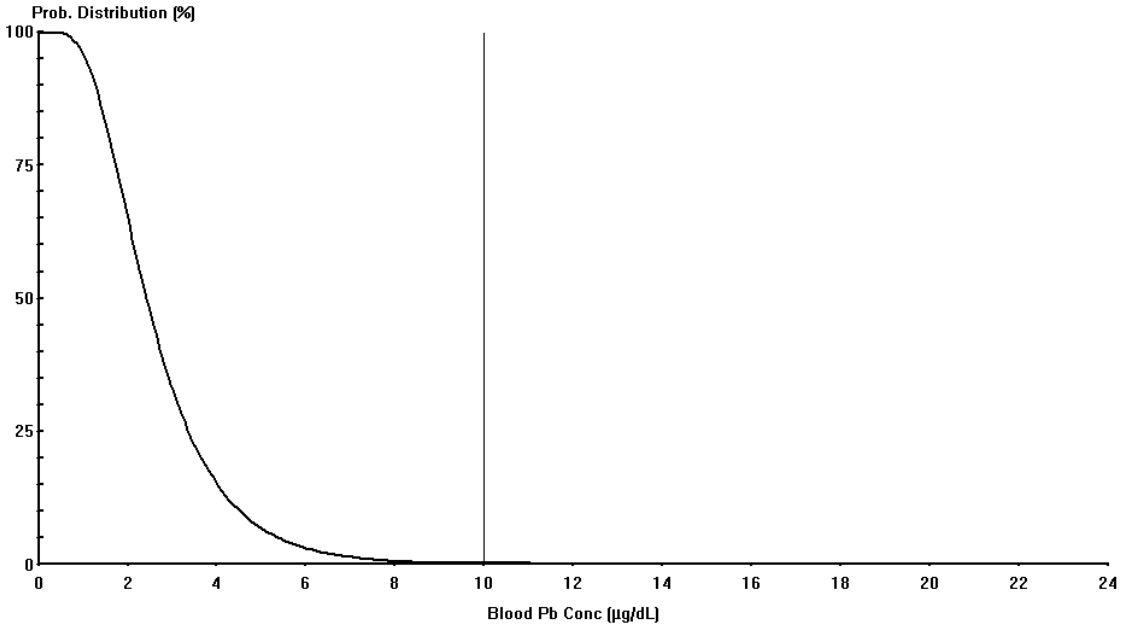
Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.068	0.000	0.378
1-2	0.034	0.919	0.000	0.937
2-3	0.062	1.007	0.000	0.983
3-4	0.067	0.972	0.000	1.010
4-5	0.067	0.942	0.000	1.063
5-6	0.093	0.996	0.000	1.127
6-7	0.093	1.082	0.000	1.150

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)

.5-1	3.495	4.963	2.7
1-2	5.505	7.396	3.1
2-3	5.552	7.604	2.8
3-4	5.597	7.646	2.7
4-5	4.205	6.277	2.2
5-6	3.804	6.021	1.9
6-7	3.603	5.928	1.7



Cutoff = 10.000 µg/dl
Geo Mean = 2.547
GSD = 1.600
% Above = 0.181

Age Range = 0 to 72 months

Run Mode = Research

LEAD MODEL FOR WINDOWS Version 1.1

==========

Model Version: 1.1 Build11
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

==========

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520

3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

****** Soil & Dust ******

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	150.000	150.000
1-2	150.000	150.000
2-3	150.000	150.000
3-4	150.000	150.000
4-5	150.000	150.000
5-6	150.000	150.000
6-7	150.000	150.000

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

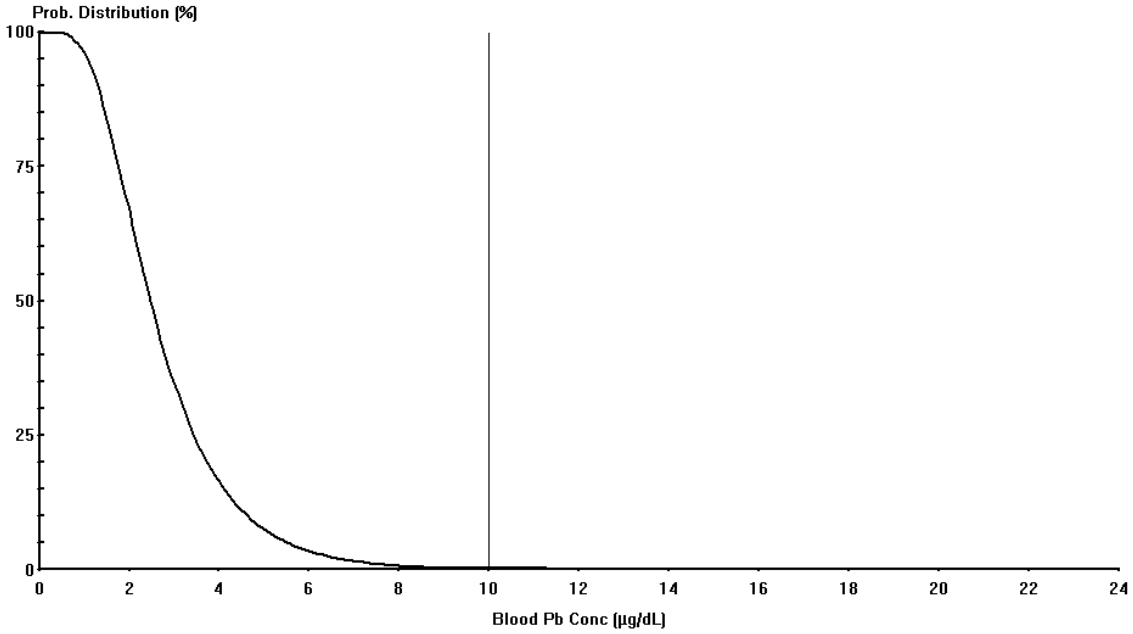
Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.067	0.000	0.378
1-2	0.034	0.917	0.000	0.936
2-3	0.062	1.006	0.000	0.982
3-4	0.067	0.971	0.000	1.009
4-5	0.067	0.942	0.000	1.062
5-6	0.093	0.995	0.000	1.126
6-7	0.093	1.081	0.000	1.149

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)

.5-1	3.611	5.077	2.8
1-2	5.686	7.574	3.1
2-3	5.736	7.785	2.9
3-4	5.783	7.830	2.8
4-5	4.347	6.417	2.3
5-6	3.933	6.148	2.0
6-7	3.725	6.049	1.7



Cutoff = 10.000 µg/dl
Geo Mean = 2.605
GSD = 1.600
% Above = 0.210

Age Range = 0 to 72 months

Run Mode = Research

TABLE K-3G

ADULT LEAD MODEL OUTPUTS - AREA G SURFACE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	893	893
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**2.3**	**2.8**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	5.4	8.5
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.4%**	**3.1%**

TABLE K-4G

ADULT LEAD MODEL OUTPUTS - AREA G AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	775	775
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**2.1**	**2.6**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	5.0	8.0
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.2%**	**2.6%**

TABLE K-4H

ADULT LEAD MODEL OUTPUTS - AREA H AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	400	400
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.6**	**2.1**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	3.7	6.3
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**1.2%**

TABLE K-4I

ADULT LEAD MODEL OUTPUTS - AREA I AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	156	156
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**	**1.7**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.9	5.3
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**0.6%**

LEAD MODEL FOR WINDOWS Version 1.1

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Model Version: 1.1 Build11
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

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******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520

3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 µg Pb/L

****** Soil & Dust ******

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	168.000	168.000
1-2	168.000	168.000
2-3	168.000	168.000
3-4	168.000	168.000
4-5	168.000	168.000
5-6	168.000	168.000
6-7	168.000	168.000

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

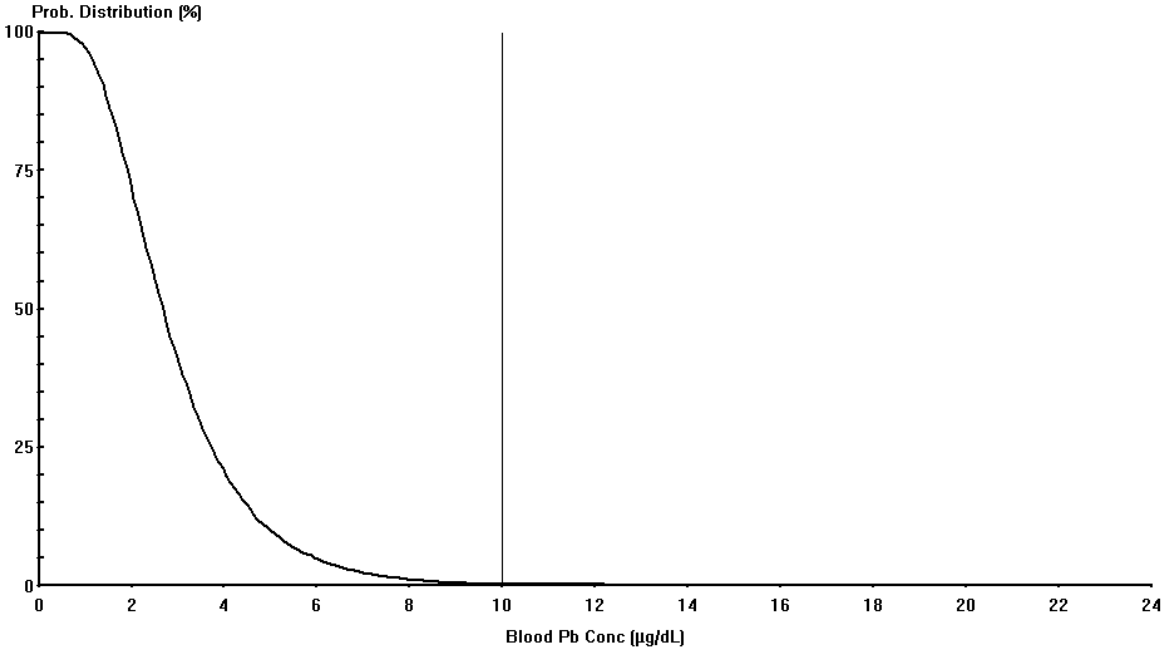
Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.062	0.000	0.376
1-2	0.034	0.912	0.000	0.931
2-3	0.062	1.001	0.000	0.977
3-4	0.067	0.967	0.000	1.005
4-5	0.067	0.939	0.000	1.060
5-6	0.093	0.993	0.000	1.124
6-7	0.093	1.079	0.000	1.147

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)

.5-1	4.026	5.484	3.0
1-2	6.333	8.210	3.4
2-3	6.393	8.432	3.2
3-4	6.449	8.488	3.0
4-5	4.855	6.920	2.5
5-6	4.395	6.606	2.1
6-7	4.164	6.483	1.9



Cutoff = 10.000 µg/dl
Geo Mean = 2.813
GSD = 1.600
% Above = 0.348

Age Range = 0 to 72 months

Run Mode = Research

LEAD MODEL FOR WINDOWS Version 1.1

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Model Version: 1.1 Build11
User Name:
Date:
Site Name:
Operable Unit:
Run Mode: Research

==========

******** Air ********

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (µg Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

******** Diet ********

Age	Diet Intake(µg/day)
.5-1	2.260
1-2	1.960
2-3	2.130
3-4	2.040
4-5	1.950
5-6	2.050
6-7	2.220

******** Drinking Water ********

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580

6-7 0.590

Drinking Water Concentration: 4.000 µg Pb/L

****** Soil & Dust ******

Age	Soil (µg Pb/g)	House Dust (µg Pb/g)
.5-1	132.000	132.000
1-2	132.000	132.000
2-3	132.000	132.000
3-4	132.000	132.000
4-5	132.000	132.000
5-6	132.000	132.000
6-7	132.000	132.000

****** Alternate Intake ******

Age	Alternate (µg Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

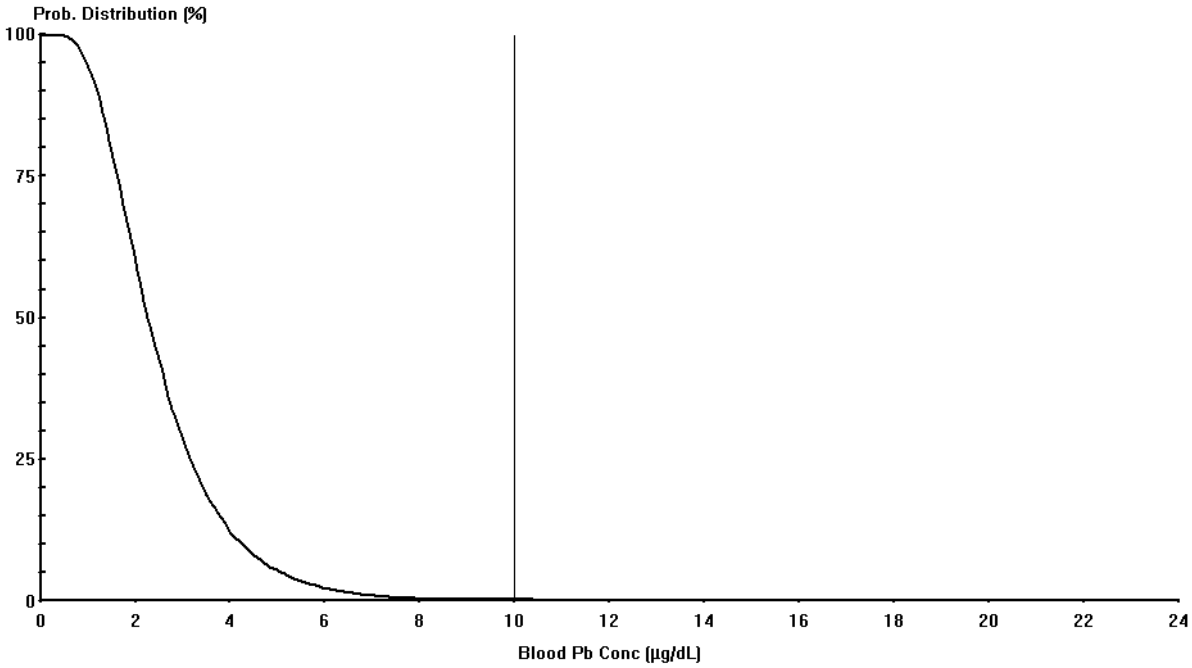
Maternal Blood Concentration: 1.000 µg Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (µg/day)	Diet (µg/day)	Alternate (µg/day)	Water (µg/day)
.5-1	0.021	1.072	0.000	0.379
1-2	0.034	0.923	0.000	0.941
2-3	0.062	1.010	0.000	0.987
3-4	0.067	0.975	0.000	1.013
4-5	0.067	0.944	0.000	1.065
5-6	0.093	0.998	0.000	1.129
6-7	0.093	1.083	0.000	1.151

Year	Soil+Dust (µg/day)	Total (µg/day)	Blood (µg/dL)
.5-1	3.193	4.665	2.5
1-2	5.033	6.931	2.9
2-3	5.072	7.132	2.7

3-4	5.111	7.166	2.5
4-5	3.836	5.912	2.1
5-6	3.469	5.689	1.8
6-7	3.285	5.612	1.6



Cutoff = 10.000 µg/dl
Geo Mean = 2.394
GSD = 1.600
% Above = 0.118

Age Range = 0 to 72 months

Run Mode = Research

TABLE K-3J

ADULT LEAD MODEL OUTPUTS - AREA J SURFACE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	168	168
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**	**1.7**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.9	5.3
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**0.6%**

TABLE K-4J

ADULT LEAD MODEL OUTPUTS - AREA J AGGREGATE SOIL
SCOVILL INDUSTRIAL LANDFILL SITE
WATERBURY, CONNECTICUT

Variable	Description of Variable	Units	GSDi and PbBo from Analysis of NHANES 1999-2004	GSDi and PbBo from Analysis of NHANES III (Phases 1&2)
PbS	Soil lead concentration	ug/g or ppm	132	132
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	1.8	2.1
PbB_0	Baseline PbB	ug/dL	1.0	1.5
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050
IR_{S+D}	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--
W_S	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--
K_{SD}	Mass fraction of soil in dust	--	--	--
$AF_{S, D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12
$EF_{S, D}$	Exposure frequency (same for soil and dust)	days/yr	219	219
$AT_{S, D}$	Averaging time (same for soil and dust)	days/yr	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**	**ug/dL**	**1.2**	**1.7**
$PbB_{fetal, 0.95}$	95th percentile PbB among fetuses of adult workers	ug/dL	2.8	5.2
PbB_t	Target PbB level of concern (e.g., 10 ug/dL)	ug/dL	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**0.0%**	**0.6%**