Draft Final Remedial Investigation Report Hamilton/Labree Roads Groundwater Contamination Superfund Site

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DRAFT FINAL REMEDIAL INVESTIGATION REPORT
HAMILTON/LABREE ROADS GROUNDWATER
CONTAMINATION SUPERFUND SITE

September 1, 2011

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Acronyms and Abbreviations

AOC	Administrative Order on Consent
bgs	below ground surface
BRA	baseline risk assessment
Breen	S.C. Breen Construction Company
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cis-1,2-DCE	cis-1,2-dichloroethene
cm/s	centimeters per second
COPC	contaminants of potential concern
CSM	conceptual site model
DPT	Direct Push Technology
DNAPL	dense non-aqueous phase liquid
DNR	Washington State Department of Natural Resources
DO	Dissolved Oxygen
E&E	Ecology and Environment, Inc.
Ecology	Washington State Department of Ecology
EE/CA	engineering evaluation/cost analysis
EPA	U.S. Environmental Protection Agency
ERT	Emergency Response Team
ESA	Endangered Species Act
ESAT	Environmental Services Assistance Team
EVS	Environmental Visualization System
ºF	degrees Fahrenheit
Farallon	Farallon Consulting, L.L.C.
FS	feasibility study
ft	foot
ft/d	feet per day
ft/ft	foot per foot
gpm	gallon per minute
HI	hazard index
HQ	hazard quotient
HRIA	Hamilton Road Impact Area

I-5	Interstate 5
kg	kilogram
MCL	maximum contaminant level
µg/L	microgram per liter
µg/m^3	microgram per cubic meter
mg/kg	milligram per kilogram
MRL	method reporting limit
MSL	mean sea level
MTCA	Model Toxics Control Act
mV	millivolt
MW	monitoring well
NPL	National Priorities List
ORP	Oxidation Reduction Potential
OU	Operable Unit
PCE	tetrachloroethene
ppm-v	parts per million-volume
PQL	practical quantitation limits
QA	quality assurance
RDD	Rural Development District
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
SAIC	Science Applications International Corporation
Site	Hamilton/Labree Roads Groundwater Contamination Superfund Site
START	Superfund Technical Assistance and Response Team
SVOC	semi-volatile organic compound
TCE	trichloroethene
TEG	Transglobal Environmental Geosciences
TIC	tentatively identified compound
TP	test pit
TPH	Total Petroleum Hydrocarbons
TPH-D	Total Diesel-Range Petroleum Hydrocarbons
TPH-G	Total Gasoline-Range Petroleum Hydrocarbons
UGA	Urban Growth Area
URS	URS Group, Inc.
VOC	volatile organic compound
WAC	Washington Administrative Code
WDOH	Washington State Department of Health

Executive Summary

This report presents the remedial investigation (RI) completed by the U.S. Environmental Protection Agency (EPA) for Operable Unit 1 of the Hamilton/Labree Roads Groundwater Contamination Superfund Site (Site) in Chehalis, Washington.

The data used to develop the RI were collected during numerous investigations conducted across the Site between 1993 and 2007. These investigations were conducted by numerous parties, often for distinct and different purposes. The interpretation of the data may have varied over time as additional data were collected. While this document attempts to provide a complete and cohesive RI, it is acknowledged that there may be inconsistencies in the report at times, and numerous data gaps remain for the RI.

The Site is located near the intersection of North Hamilton Road and Labree Road, west of Interstate 5 (I-5), about two miles south of the City of Chehalis, Washington. The Site includes two areas where releases of hazardous wastes are known to have occurred: *Operable Unit 1*, which is hereafter referred to as the Hamilton Road Impact Area (HRIA), and the S.C. Breen Construction Company (Breen) Property. The Site also contains an area where a release is likely to have occurred called, for purposes of this RI report, the Thurman Berwick Creek Area. Contaminated groundwater plumes that originate from these areas extend downgradient and west of Labree Road. To distinguish these areas from Operable Unit 1, the Breen Property, Thurman Berwick Creek Area, and downgradient areas of the HRIA and Breen Property compose *Operable Unit 2*.

The HRIA includes a property containing two large commercial buildings that are occupied by United Rentals, grassy open land on the west, parking for an RV outlet center on the south, and to the east, across North Hamilton Road, is Berwick Creek and the grassy buffer for I-5. The Breen Property, located to the northwest of the HRIA, is occupied by five large commercial buildings, three of which (Buildings A, B, C) are occupied by Breen Construction Company, and the remaining two by a livestock auction house. The Thurman Berwick Creek Area occupies the southeast corner of the intersection of North Hamilton Road and Labree Road, south of the Breen Property and is bisected by Berwick Creek. The remainder of the Site area to the west, northwest, and south is primarily farmland with some residences and light commercial developments.

This report presents an interpretation of groundwater, soil, surface water, creek bed sediment/soil, and other data collected to assess the nature and extent of contamination, contaminant fate and transport, and potential risks to human health and the environment associated with contaminated media across the Site with a focus on the HRIA that comprises Operable Unit 1.

Operable Unit 2 has not yet been fully characterized. This report, however, includes information on the investigations conducted and the preliminary data results obtained to date at these areas to better understand Site-wide groundwater contamination.

Historical Investigations

After the discovery of tetrachloroethene (PCE) in private wells in 1993, the Washington State Department of Ecology (Ecology) performed several investigations to find the source of the contamination. Both the HRIA and Breen Property were identified as sources during these investigations. EPA took over the investigation work in July 2000, when the Site was added to the EPA National Priorities List (NPL).

In 2003, EPA began additional investigations to better define the extent of soil and groundwater contamination, including defining the extent of dense non-aqueous phase liquid (DNAPL) in the Berwick Creek bed and the shallow aquifer related to a potential release or spill into Berwick Creek. Around the same time, Breen initiated Phase II RI sampling to better define the nature and extent of contamination on and downgradient of the Breen Property.

In July 2007, EPA conducted supplemental groundwater and surface water sampling across the Site, focusing on the areas downgradient of the HRIA and Breen Property. Sampling included private wells along Rice Road that had not been previously sampled and private wells that had historically contained PCE. In addition, in November 2007, EPA conducted air sampling in and around private residences and commercial buildings across the Site. The resulting data were used to assess whether volatilization of contaminants from the shallow aquifer was impacting indoor and outdoor air.

Nature and Extent of Contamination

Both the HRIA and the Breen Property have been identified as sources of contaminants of potential concern (COPCs) in shallow groundwater beneath the Site. A third potential source appears to be located within or upgradient of the Thurman Berwick Creek Area. This contaminated groundwater occurs in an aquifer that extends from roughly 5 feet to approximately 50 feet below the ground surface (bgs). The shallow aquifer is used as a drinking water source for area residences not on the City of Chehalis water system.

The COPCs are primarily PCE and its daughter or degradation products trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride, and the chemicals tetrahydrofuran and methylene chloride. Total petroleum hydrocarbons (TPH) are also being considered as presumptive COPCs until proven otherwise.

The primary contaminant at the HRIA is the result of an apparent spill or dumping of PCE into Berwick Creek in the vicinity of sampling location MW-602, located east of the main United Rentals Building. The spill is estimated to have occurred sometime before 1990. The data point strongly to a single release at this location, but multiple releases may have occurred along a 400-foot reach of Berwick Creek. The estimated volume of the release is between 100 and 700 gallons. The contaminant at the HRIA is PCE, and there is no evidence of the PCE being mixed with any other contaminant. Some breakdown compounds of PCE are present, including TCE and cis-1,2-DCE, but at much lower concentrations than PCE and with a much lower frequency of detection. PCE has contaminated a silt layer in the bed of the creek and the soil and groundwater of the shallow aquifer.

The groundwater contamination at the Breen Property appears to be from multiple sources/releases related to site operations between the early 1960s and early 1990s. One source (the former location of buried drums beneath Building B) was remediated in 1999, and two other sources (a former wash-down pad and an area between Building C and the Torpedo Tube) appear to exist on the Breen Property.

The results of groundwater sampling conducted in the areas downgradient of the HRIA and south of the Breen Property indicate the presence of a potential source within or upgradient of the Thurman Berwick Creek Area. The location of this potential source is currently unknown.

Based on the most recent groundwater sampling event conducted in summer 2007, both the HRIA and the Breen Property appear to be active sources as concentrations have not significantly declined since 2003. The groundwater plume originating from the HRIA appears to be the younger and the more concentrated of the two plumes and has migrated at least 2,000 feet from its source, assuming the HRIA source is not much older than 1990. The plume from the Breen Property appears to be older and less concentrated based on historic information regarding operations at the site and on investigation results. Although the full extent of the Site-wide plume is not currently known, it appears to have migrated a minimum of 3,000 feet downgradient from the Breen Property to the west-northwest of Labree Road.

Based on the groundwater modeling completed for the Site, the maximum length of the plume emanating from the HRIA is approximately 2,000 feet, or approximately 500 feet west of Labree Road, assuming the release into Berwick Creek did not occur much before 1990 based on the observed extent of the HRIA plume in 1993. If so, the majority of the downgradient groundwater plume west of Labree Road most likely originated from the Breen Property and the Thurman Berwick Creek Area. Moreover, a north-south zone east of where North Hamilton Road crosses Berwick Creek appears to act as a PCE "bottleneck," where PCE transport in the upper zone of the shallow aquifer to the Breen Property and the Thurman Berwick Creek Area is limited. Within this "bottleneck" area, the upper 20 feet of the shallow aquifer has very little PCE contamination. Therefore, the PCE contamination in the upper zone of the shallow aquifer west of this north-south "bottleneck" zone (including the Breen Property and the Thurman Berwick Creek Area) could not have come from the HRIA.

PCE concentrations in the lower zone of the shallow aquifer in the Thurman Berwick Creek Area reflect mixing between deeper groundwater contamination from the Breen Property or upgradient Berwick Creek sources and deeper groundwater contamination from the HRIA. In the lower zone downgradient of the "bottleneck," the contribution from the HRIA appears to be limited to approximately 1,000 micrograms per liter (µg/L) based on PCE isoconcentrations maps developed for the Site. Regardless of the age of the HRIA source, these apparent constraints on PCE migration suggest that in the area downgradient of Labree Road, approximately 25 to 30 percent of contamination is from the HRIA source zone. However, a full mass flux/discharge evaluation would need to be conducted within the upper and lower zones of the shallow aquifer to determine the actual contribution from the HRIA.

Currently, the extent of the PCE groundwater plume downgradient of the Breen Property and the Thurman Berwick Creek Area west of Labree Road is unknown. In addition, the plume edges in the downgradient area west of Labree Road have not been adequately established, particularly on the northeast edge parallel to I-5.

Baseline Risk Assessment

The human health risk assessment concluded that if current groundwater concentrations of volatile organic compounds (VOCs), particularly PCE, persist and groundwater is used as a drinking water source in the future, the health of on-site workers or downgradient residents may be adversely affected. However, the commercial and private properties in and near the known area of the contaminated groundwater plume are connected to a municipal water system. There are no drinking water wells in use within the currently known extent of the plume, and so EPA is reasonably confident that current human populations are not drinking contaminated water. If the contaminated groundwater plume is allowed to persist, or if the plume has migrated in an unanticipated direction or to a greater extent than anticipated, residences downgradient of the municipal water supply line could be affected in the future. At three subareas evaluated in the HRIA (the area along North Hamilton Road plus the area between the road and Berwick Creek north of where the road bends to the west, the core United Rentals area, and the fringe United Rentals area), potentially elevated noncancer and cancer risks are estimated for construction or utility workers that may work in a trench for an extended period. The COPC concentrations in trench air are particularly uncertain because they were estimated from groundwater concentrations, but the risk estimates suggest that precautions should be taken if trenching occurs in these areas in the future. Estimated risks from the volatilization of contaminants in groundwater to indoor air are below the risk threshold level at the HRIA and the Breen Property, as well as downgradient residences. However, the indoor air inhalation risk estimates are based on one round of indoor sampling; additional indoor air sampling is necessary to refine the indoor air inhalation risk estimates. Recreational activities at Berwick Creek are anticipated to be of minimal concern if conducted away from the primary PCE spill source at the HRIA.

The overall results of the ecological risk assessment indicate that current contaminant concentrations of PCE in subsurface soils and sediment associated with the HRIA spill area may represent a potential for elevated risks to organisms. However, risks to ecological receptors are ultimately considered to be minimal because (1) highly conservative exposure estimates were utilized in the baseline risk assessment (BRA) and (2) the HRIA spill area is generally confined to a small area within Berwick Creek, although PCE (but not the other COPCs) was detected in Dillenbaugh Creek surface water along the northeastern edge of the plume.

Overall, PCE and associated VOC risks are localized in groundwater, soils, and sediment. Domestic use of groundwater is the primary concern at the Site (i.e., HRIA and Breen Property, and downgradient areas) and institutional controls (i.e., use of municipal water systems rather than groundwater sources and restricted access to the HRIA and Breen Property) will minimize exposure to contaminants associated with the HRIA and the Breen Property. The potential inhalation risks from VOCs, particularly PCE and TCE, in trenches at select subareas of the HRIA are also of concern, and institutional controls (e.g., requirements for personal protection) should be considered to reduce exposures via this route (or trench air concentrations could be empirically determined to refine the risk estimates before workers spend time in a trench).

Due to the uncertainties and limitations related to data gaps for soil, groundwater, and surface water analysis, additional sampling and analysis will be needed across the Site. This is especially true for contaminated groundwater in the upper portion of the shallow aquifer and the potential risks from vapor intrusion.

Summary and Conclusions

Soil

Soil depths have been divided into three categories for purposes of delineating PCE contamination: surface, near surface and subsurface. In general, surface soils at this Site are defined as 0 to 5 feet bgs and near surface soil at 5 to 10 feet bgs. Subsurface soils exist at depths greater than 10 feet and are typically below the silt cap/shallow aquifer contact.

Currently, the only identified surface/near surface soil source of PCE to groundwater is Berwick Creek bed sediment/soil in the HRIA. Only minor surface soil contamination has been identified at the Breen Property and in downgradient areas. The highest PCE concentration was detected in subsurface soil beneath the apparent PCE release in Berwick Creek within the HRIA at high concentrations indicative of PCE DNAPL Much lower PCE concentrations have been detected in subsurface soils at the Breen Property. Additional investigations are required at the Breen Property to identify the source of groundwater contamination, which may include unidentified soil sources.

No surface or near surface soil samples from the Thurman Berwick Creek Area or downgradient areas west of Labree Road had detectable PCE. However, the only samples that have been collected were from shallow (8-foot maximum) borings along road right-of-ways, not in areas where disposal may have occurred.

Available subsurface soil sampling data for the Thurman Berwick Creek Area and downgradient areas west of Labree Road are limited. PCE was detected at four locations in the Thurman Berwick Creek Area with a maximum of 1.3 milligrams per kilogram (mg/kg). Soil data are available from one boring location west of Labree Road (MW-25); a maximum of 0.13 mg/kg PCE was detected in a sample collected at 40 feet bgs. PCE was not detected in shallower samples.

Groundwater

At the HRIA, PCE in groundwater is attributed to a source where PCE was spilled or released to Berwick Creek, an area referrred to as the Southeastern Hot Spot. Based on high PCE concentrations up to 2,720,000 µg/L, DNAPL is inferred to exist in the shallow aquifer beneath the apparent release location to a depth of approximately 35 feet. Additional investigations will be required to identify remaining sources of shallow aquifer PCE contamination at the Breen Property and the downgradient extent of the associated groundwater plume.

In the Thurman Berwick Creek Area, PCE greater than 1,000 µg/L was detected in groundwater samples collected from private well PW-9 and in shallow groundwater samples collected from several monitoring wells located downgradient of, and adjacent to, Berwick Creek. Because PCE was detected in shallow groundwater, a local source of contamination is probable.

Currently, the extent of the PCE groundwater plume downgradient of the Breen Property and the Thurman Berwick Creek Area west of Labree Road is unknown. In addition, the plume edges in the downgradient area west of Labree Road have not been fully characterized, particularly on the northeast edge parallel to I-5.

Surface Water

Surface water data indicate that concentrations of PCE in surface water do not pose a risk to aquatic receptors within Berwick Creek or Dillenbaugh Creek. The source of the PCE in surface water samples collected at several stations in Berwick Creek may be residual contamination that is dissolving from PCE entrained in the creek bed sediment/soil.

No surface water samples have been collected in Berwick Creek in the northern portion of the HRIA. High PCE concentrations have been detected in groundwater near an area referred to as the Northwestern Hot Spot. It is unknown if contaminated groundwater related to these areas potentially discharges to surface water.

Surface water samples collected in Dillenbaugh Creek indicate that PCE is present in surface water. The concentrations are most likely related to discharge of PCE-contaminated groundwater to Dillenbaugh Creek. The extent of the groundwater plume is unknown, and higher concentrations may be discharging to Dillenbaugh Creek farther downstream. Additional analytical data are necessary to adequately characterize impacts to surface water in the downgradient areas.

Creek Bed Sediment/Soil

Creek bed sediment/soil contamination appears to be primarily confined to the HRIA and an area immediately downstream of this area. PCE DNAPL has been identified in a silt layer beneath the Berwick Creek bed. The residual DNAPL is providing a continuing source of dissolved PCE to groundwater.

No creek bed sediment/soil samples have been collected from Berwick Creek in the northern portion of the HRIA. Based on soil and groundwater data for monitoring wells installed in the vicinity, a separate potential creek source is suspected.

As stated previously, PCE concentrations greater than 1,000 µg/L were detected in groundwater samples collected from private well PW-9 and in shallow groundwater samples collected from several monitoring wells in the Thurman Berwick Creek Area downgradient of, and adjacent to, Berwick Creek. A local source of contamination such as a release to Berwick Creek is likely. Additional sampling of sediment/soil in Berwick Creek in this area is necessary to assess if a release has occurred.

Indoor and Ambient Air Quality

Air sampling data from the Site showed low levels of PCE in the majority of the residential, commercial, and ambient locations. However, the estimated risks from the volatilization of contaminants in groundwater to indoor air are below the risk threshold level at the HRIA and Breen Property, as well as at downgradient residences.

Overall, the evaluation of vapor intrusion is limited, and confidence in conclusions of the assessment is low. Additional data would be necessary to provide a more useful evaluation of this pathway. Based on the results of investigations to assess the downgradient extent of groundwater contamination, additional air sampling and assessment of vapor intrusion may also be required at residences along Rice Road and other downgradient locations.

Data Limitations

A full formal RI investigation has not been completed at the Site. Instead, the data used to develop this RI report were collected during numerous investigations conducted at the Site between 1993 and 2007. In several cases, conclusions developed by the entity that collected and interpreted the original data were used to complete this RI.

Based on review of historical data, soil samples collected for VOC analysis do not appear to have been preserved using the protocols specified under EPA Method 5035A. The primary goal of this VOC collection and preservation technique is to minimize the direct volatilization of contaminants in soil to the atmosphere. Since EPA Method 5035A does not appear to have been used during soil sample collection, VOC analytical results may be biased low, especially for samples collected from the gravelly materials that comprise the shallow aquifer.

A large body of groundwater data exists for the Site, but it is unevenly distributed, both horizontally and vertically. For example, little data are available in the plume downgradient of Labree Road. Vertically, the data come from a wide mix of screened-interval lengths, including: 1) 1-foot intervals in temporary borings, 2) monitoring wells with conventional 10-foot screens, 3) monitoring wells screened across the entire shallow aquifer, and 4) private wells of unknown construction. Consequently, data interpretation requires subjective judgments as to which data should be honored, emphasized, or disregarded.

The most recent groundwater monitoring and sampling data collected at the Site were used to assess groundwater flow and plume migration. The last extensive groundwater sampling occurred at the Site in November 2003. These 2003 groundwater data were supplemented with the results of a limited groundwater sampling event conducted in July 2007 to assess the current PCE plume movement throughout the Site.

Creek channel samples were collected by Farallon south of the Breen Property. The samples were collected from the creek bed at approximately 1 foot bgs. Based on available sample collection information, it is unclear whether these samples were collected from sediment accumulations in the creek channel or if the samples were collected from the silt layer that composes the creek bottom. Based on the creek bed sample results for the HRIA, PCE was mainly detected within the silt layer. Creek samples collected south of the Breen Property may not represent the actual PCE concentrations in the Berwick Creek bed near the Breen Property.

Limited data regarding groundwater and surface water interaction were available downgradient of the Breen Property. Surface water data were collected in July 2007 from Dillenbaugh Creek but were limited to two samples.

Recommendations for Future Action

Recommendations for future action at the Site include the following:

Site-Wide

- Conduct aquifer testing in the area downgradient and west of Labree Road and downgradient of the United Rentals facility to better define Site-wide hydraulic conductivity.

- Evaluate horizontal and vertical hydraulic gradients Site-wide in and between the upper and lower zones of the shallow aquifer and assess seasonal gradient shifts in direction by collecting comprehensive gradient data at least quarterly for one year.
- Evaluate depth-discrete variations in hydraulic conductivities and preferential pathways associated with relatively higher-conductivity stratigraphic layers within the shallow aquifer by conducting aquifer testing within temporary boreholes and completed wells screened at discrete depths within the aquifer and include findings in numeric and 3D EVS model.
- Collect soil core samples for analysis of porosity, density, and grain size to better define Site-wide aquifer characteristics.
- Complete additional assessment and mapping of the Site-wide vertical distribution of PCE in groundwater. In particular, contaminant characterization of the lower zone of the shallow aquifer between the United Rentals facility and the "bottleneck" is needed, as well as vertical and horizontal plume transects from Labree Road to the end of the plume.
- Evaluate the relative contribution of the HRIA, Breen Property and/or Thurman Berwick Creek Area contaminant sources on contaminant mass loading to the Site-wide contaminant plume by evaluating mass discharge of contaminants from proposed transects.
- Sound the depth of private wells with no logs that are located within the plume.
- Delineate the impacts of contamination in the deep aquifer within the HRIA, Breen Property and Thurman Berwick Creek Areas by installing additional, deep monitoring wells. These wells would need to be carefully installed using best practices to prevent contamination from the shallow aquifer from migrating to the deep aquifer during and after well construction.
- Conduct a stable isotope study, including analysis of tentatively identified compounds (TICs), to distinguish between PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek Area.
- Update Site-wide EVS modeling using newly acquired Site chemical and physical data discussed in other sections of this RI report, . Update three-dimensional fate and transport modeling using the newly collected aquifer parameters.
- Install shallow piezometers within the stream bed along Berwick and Dillenbaugh Creeks to measure head differences between the surface water of the creek and the groundwater within the bed/or slightly below the bed of the creek in order to determine where gaining and losing reaches of the creek exist and their influence on contaminant fate and transport.
- Conduct additional indoor and ambient air sampling following completion of the remedial action at the HRIA.

HRIA

- Collect surface water samples in the section of Berwick Creek between approximately MW-R4 and MW-33. No surface water sampling appears to have been conducted in this length of Berwick Creek.

- Collect sediment/soil samples in the section of Berwick Creek between approximately MW-R4 and MW-33 to attempt to identify potential creek sources to groundwater contamination.
- Conduct pre-remedial design soil sampling to validate which VOCs and other contaminants (such as petroleum hydrocarbons) are present and at what concentration. The need for this investigation would be assessed after a remedial alternative is selected and prior to remedial design.
- Collect depth-specific groundwater samples from the MW-600 series wells. If results indicated significant downward migration of contamination, these wells should be abandoned.
- Conduct pre-remedial design groundwater sampling and analysis for petroleum hydrocarbons, metals, semi-volatile organic compounds, and pesticides, in particular at source areas.

"Bottleneck"

- Conduct one to two north-south transects between MW-3 and MW-22/23 to assess contaminant mass discharge at the outlet of the HRIA source area and the inlet of the interface with the Breen/Thurman Berwick Creek source(s). Groundwater samples would be collected at four different intervals in each boring: a shallow interval (upper 5 feet of the aquifer), from approximately 15-25 feet bgs, from approximately 30 to 40 feet bgs, and a deep sample from approximately 40 feet bgs to the bottom of the aquifer (typically around 50 feet bgs).
- Install borings to characterize and define the north and south ends of the "bottleneck" and south of MW-24 to RS-24.
- Install east-west centerline borings in both the northern and southern plume lobes to fill in between north-south transects.
- Install a transect extending east and west from the HRIA source area containing DNAPL (Southeastern Hot Spot) to the Thurman Berwick Creek area. Collect lithologic information and aquifer parameters. Groundwater sampling would be completed at the same intervals as discussed for the two north-south transects between MW-3 and MW-22/23. Use information from this transect to prepare a cross-section identifying conditions from the HRIA, through the "bottleneck", and to the Thurman Berwick Creek Area.

Breen Property

- Conduct a geophysical investigation in areas not previously investigated to attempt to locate potential sources, such as additional buried drums.
- Conduct a subsurface investigation in areas identified as potential sources and in areas containing geophysical anomalies that were not previously evaluated. Groundwater and soil samples would be collected at four different intervals in each boring: a shallow interval (upper 5 feet of the aquifer), from approximately 15-25 feet bgs, from approximately 30 to 40 feet bgs, and a deep sample from approximately 40 feet bgs to the bottom of the aquifer (typically around 50 feet bgs). Analysis would include VOCs, petroleum hydrocarbons, and metals.
- Install additional monitoring wells in areas identified by the subsurface investigation to better assess the lateral and vertical extent of the groundwater plume and its migration.

- Install additional monitoring wells in the southeastern and central portions of the property to evaluate a potential northern migration pathway from the HRIA.
- Complete a round of groundwater sampling and analysis (including VOCs, petroleum hydrocarbons, metals, field monitored parameters, and general chemistry) that would include newly installed wells and existing wells to obtain a current snapshot of the groundwater plume at the Breen Property.
- Soil samples collected from borings need to be handled and preserved per EPA Method 5035A and analyzed for VOCs and petroleum hydrocarbons.

Thurman Berwick Creek Area

- Conduct additional sampling of sediment/soil in Berwick Creek between RS-46 and Labree Road to attempt to identify potential creek sources for groundwater contamination in PW-9.
- Complete a north-south boring transect south from boring B-8 to a line running from MW-4 to MW-24. Collect soil and groundwater samples in the same manner as discussed for the "bottleneck" area and Breen Property borings.
- Measure the depth of PW-9 to assess well construction and determine the zone groundwater is withdrawn from in this well.

Downgradient Areas West of Labree Road

- Install monitoring wells along the plume axis downgradient of the Breen Property between Labree Road and MW-25 to better assess the groundwater plume and its migration.
- Install monitoring wells downgradient of MW-25 along the approximate plume axis, based on a series of boring transects. Proposed well locations should include the area between MW-25 and the suspected leading edge of the plume, at or near the leading edge of the plume, and between the leading edge and at a downgradient point(s) where PCE is undetectable. Groundwater samples would be collected at four different intervals in each boring.
- Install subsurface borings to collect soil and groundwater samples between RS-47 and I-5 to assess the extent of the groundwater plume from the Breen Property.
- Install two subsurface borings and collect soil and groundwater samples in the high-uncertainty area identified in the EVS modeling to the south of RS-49 to assess the extent of the apparent plume from the Thurman Berwick Creek Area and to better assess the portion of the plume upgradient of PW-21.
- Collect surface water samples in Dillenbaugh and Berwick Creeks between Labree Road and MW-28 to assess PCE concentrations. In addition, collect groundwater samples adjacent to the surface water sample locations along Dillenbaugh Creek to evaluate the concentrations of groundwater potentially being discharged.
- Depending upon results of the soil/sediment sampling in the Thurman Berwick Creek Area, collect sediment/soil samples in Berwick Creek between Labree Road and the confluence with Dillenbaugh Creek to evaluate whether additional creek sources exist.

Section 1
Introduction

This report presents the results of a remedial investigation (RI) completed by the U.S. Environmental Protection Agency (EPA) for Operable Unit (OU) 1 of the Hamilton/Labree Roads Groundwater Contamination Superfund Site in Chehalis, Washington. The RI was completed under the EPA Region 10 Architect and Engineering Services (Small Business) Contract No. 68-S7-03-04. This RI report was prepared in accordance with the Guidance for Conducting Remedial Investigations and Feasibility Studies under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [Interim Final, October 1988] (EPA 1988).

The Hamilton/Labree Roads Groundwater Contamination Superfund Site (the Site) consists of two OUs referred to as OU1 and OU2. OU1 is also known as the Hamilton Road Impact Area (HRIA). OU2 consists of the S.C. Breen Construction Company (Breen) Property, the Thurman Berwick Creek Area, and all other associated geographic areas where tetrachloroethene (PCE) and related chemicals have been found in groundwater. The Site location is shown on **Figure 1-1** and described further in Section 1.3.1.

A full formal RI investigation has not been completed at the site. Instead, this RI report represents a compilation of numerous published documents and data not previously presented in reports, which were generated by a variety of consultants and EPA between 1993 and 2007. Investigations were conducted on behalf of EPA, the Washington State Department of Ecology (Ecology) and Breen over the years. While this document attempts to provide a complete and cohesive RI, numerous challenges were encountered during compilation of this RI, including:

- Varying purposes of the different phases of investigations
- Varying investigation methods utilized over the years
- Improvements in various technologies (i.e., soil sample collection methods)
- Loss of data (e.g., missing sample location information, missing analytical data)
- Transcription errors (e.g., analytical data, survey data, etc.)
- Unsurveyed exploration locations
- Changes in personnel working on the project over time
- Differing opinions by the various consultants and agencies working on the project
- The complexity of the Site

It is therefore acknowledged that there may be inconsistencies in the report and numerous data gaps remain for the RI.

1.1 Purpose

The purpose of this RI report is to present an interpretation of groundwater, soil, surface water, creek bed sediment/soil, and other data collected during previous environmental investigations conducted at the Site in order to assess the nature and extent of contamination, contaminant fate and transport, determine potential risks to human health and the environment associated with contaminated media across the Site, and determine if data gaps need to be resolved in order to provide recommendations for future actions. This RI report focuses on the area of the Site designated as OU1. This RI report will form the basis for the OU1 Feasibility Study (FS) report and support the OU1 Record of Decision (ROD).

While OU2 has not yet been fully characterized, this RI report provides information on the investigations conducted and the preliminary data results obtained to date across OU2 to the extent necessary, to better understand Site-wide groundwater contamination, especially contamination attributable to OU1.

1.2 Report Organization

This report is divided into eight sections as described below:

Executive Summary - summarizes the information presented in this report.

Section 1: Introduction – describes Site information, including the Site description and history.

Section 2: Previous Environmental Investigations – describes the previous environmental investigations that have been conducted at the Site.

Section 3: Physical Characteristics of the Site – describes regional and Site-wide topography, drainage, climate, geology, hydrogeology, surface water hydrology, demography, land and groundwater use, and current ecological conditions.

Section 4: Nature and Extent of Contamination – summarizes the results of previous investigations, identifies the Site contaminants of potential concern (COPCs), and discusses distribution of these contaminants in Site media.

Section 5: Contaminant Fate and Transport – describes the behavior of contaminants in various contaminated media throughout OU1, presents the conceptual site model (CSM), and provides a summary of groundwater modeling completed to assess future migration and potential impacts on downgradient receptors.

Section 6: Baseline Risk Assessment – presents a summary of the results of the baseline human health and ecological risk assessments completed for OU1.

Section 7: Summary, Conclusions, and Recommendations – provides a summary of the findings of the RI and presents conclusions and recommendations for future work to assess data gaps.

Section 8: References

Tables and Figures are presented after the report text.

Appendices include the following:

Appendix A: Analytical Data Tables
Appendix B: Plates
Appendix C: Technical Memoranda
Appendix D: Geologic Cross-Sections and Isoconcentration Contour Maps
Appendix E: Boring and Well Logs
Appendix F: Concentration Trend Plots
Appendix G: Baseline Risk Assessment Report

1.3 Site Background

This section presents background information, including a description of the Site and its history.

1.3.1 Site Description

The Site is located near the intersection of North Hamilton Road and Labree Road, west of Interstate 5 (I-5), about two miles south of the City of Chehalis, Washington (**Figure 1-1**). The Site includes two areas where releases of hazardous wastes are known to have occurred: OU1, known as the HRIA, and the Breen Property. The Site also contains an area where a release is likely to have occurred called, for purposes of this RI report, the Thurman Berwick Creek Area (**Figure 1-1**). Contaminated groundwater plumes originating from these areas extend downgradient and west of Labree Road. The Breen Property, the Thurman Berwick Creek Area, and the remaining extent of the contaminant plume outside of these specifically named properties comprise OU2.

The boundary between the City of Chehalis and unincorporated Lewis County bisects the Site roughly north to south along the western side of Labree Road. The HRIA, the Breen Property east of Labree Road, and the Thurman Berwick Creek Area are within the city limits of Chehalis. The entire portion of the Site within the City of Chehalis is zoned for commercial use. The portion of the Site located in Lewis County west of Labree Road is zoned as rural development district and agricultural resource lands. Land uses include agricultural uses (predominately dairy) and residential use (Farallon 2003).

The Site is located within the Newaukum River Valley and has relatively flat topography. Berwick Creek traverses the Site from southeast to northwest and merges with Dillenbaugh Creek northwest of the Breen Property. Overall, the Site slopes downward toward the northwest. Groundwater and surface water flow are generally northwest along the Newaukum River Valley towards the Chehalis River (URS 2004).

1.3.1.1 Operable Unit 1 - HRIA

The HRIA is located at the most upgradient portion of the Site and is approximately 10 acres in size (**Figure 1-2**). It is crossed from northwest to southeast by North Hamilton Road and Berwick Creek. The portion of the HRIA located between North Hamilton Road and I-5 consists of grassy open land that includes Berwick Creek (which flows northwest), overhead power lines, and a wire field fence that prevent access to I-5. Two unnamed ditches pass underneath I-5 and discharge to Berwick Creek within the HRIA.

The portion of the HRIA west of North Hamilton Road includes the United Rentals Property. The property is level with mixed gravel, asphalt, and concrete surfaces and contains two buildings: the main

building, and the maintenance and paint shop building. An easement containing buried utilities and a stormwater conveyance system is located between the United Rentals Property and North Hamilton Road.

1.3.1.2 Operable Unit 2 - Breen Property

The Breen Property is located northwest of the HRIA and is approximately 11 acres in size (**Figure 1-2**). The Breen Property, originally one tax parcel, was subdivided and now consists of two separate tax parcels that are currently owned by two different entities. The western portion of the Breen Property is owned by the S.C. Breen Construction Company and consists of approximately 6.5 acres containing three wood-framed, steel-clad buildings with concrete floors. The first building, identified as Building A is located at the northern end of the parcel. The second building, identified as Building B, is located southeast of Building A. The third building, Building C, is located on the southern end of the parcel and is mostly unoccupied. A concrete wash-down pad approximately 24 feet by 38 feet is located southeast of Building C. Bulldog Trailers currently operates out of Building A. Building B is leased by another company.

The S.C. Breen Construction Company sold the eastern portion of its property to the Chehalis Livestock Market in 1992 (Farallon 2003). This parcel is primarily used as a cattle auction facility. The parcel is approximately 4.5 acres in size and contains a building that houses an arena, a café, and offices, plus outside cattle pens (Livestock Auction Building). A smaller wood-framed building with a dirt floor is located along the southern boundary (Livestock Shed). This building is primarily used to hold calves prior to auction. The remainder of this parcel consists of an unpaved parking area. Berwick Creek extends along the southern property boundary.

1.3.1.3 Operable Unit 2 - Thurman Berwick Creek Area

The Thurman Berwick Creek Area is located in the southeast corner of the intersection of North Hamilton Road and Labree Road, west and downgradient of the HRIA and south of the Breen Property. The Thurman Berwick Creek Area is divided by Berwick Creek into two portions: the northwest portion currently contains a residential structure, and the southeast portion is undeveloped land.

1.3.1.4 Operable Unit 2 - Downgradient Areas West of Labree Road

This portion of the Site includes the remaining area within the groundwater PCE plume footprint that is downgradient of the HRIA, the Breen Property, and the Thurman Berwick Creek Area west of Labree Road (**Figure 1-2**). Most of the current land use in this area is farmland, but residential and light commercial uses also occur.

1.3.2 Operational History

1.3.2.1 Operable Unit 1 – HRIA

The United Rentals Property forms the largest portion of the HRIA. In 1988, Carl Watson purchased the United Rentals Property, which was a swampy hayfield containing a few old car bodies and empty barrels. The property was graded flat and a layer of fly ash and approximately 90 truckloads of rocks were imported to build up the footprint for the subsequent buildings. The main building was constructed during the winter of 1989/1990.

The property has changed occupants and ownership numerous times since the late 1980s. Beginning in June 1990, a transmission rebuilding company operated at the property under the name Westside

Trucking Company. In 1991, Westside Trucking Company changed its name to Gear Box, Inc. and operated under that name until October 1992, when the business closed.

The property was sold on May 20, 1993, to E.G.W. Machinery, Inc., the owner of High Reach, Inc. High Reach, Inc. rented and serviced specialized aerial construction equipment. A second building, known as the paint facility, was constructed on this property in 1993.

In 1998, High Reach, Inc. was purchased by United Rentals Northwest, Inc. At this location, United Rentals ran a rental and repair service for a variety of construction equipment, as well as operating a small business that painted heavy equipment until 2009, after which the property was vacated. As of the date of this RI, the property is vacant.

1.3.2.2 Operable Unit 2 - Breen Property

The S.C. Breen Construction Company purchased the property (both of the current tax parcels) in the early 1950s. The property was used for agricultural purposes prior to development. Building C was built in 1962 to serve as the S.C. Breen Construction Company's shop and office. A second building was used as the Breen Surplus store beginning in the mid-1960s. Breen Surplus bought and sold a variety of equipment, tools, paints, thinners, and solvents. The rest of the property was used to store construction equipment and materials. Based on a review of aerial photographs, the wash-down pad appears to have been constructed between 1966 and 1969. According to Farallon (2003), a shop building was located adjacent to the wash-down pad until between 1993 and 1999.

By the early 1970s, most of the Breen Property had been cleared of vegetation. A large warehouse (Building A) was constructed in 1972 on the north end of the property. In about 1983, another warehouse (Building B) was built on the Breen Property southeast of the 1972 warehouse. In 1995, Bulldog Trailers opened operations on this property using both the 1972 (Building A) and 1983 (Building B) warehouses. Bulldog Trailers used Building B until 1999 when interim remedial actions were conducted to remove drums from under the building. Bulldog Trailers now operates out of Building A, and Building B is leased by another company.

In 1992, the S.C. Breen Construction Company sold the eastern parcel to the Chehalis Livestock Market. In 1998, the new owners started conducting quarterly farm equipment sales. Currently, the property is used primarily as a cattle auction house.

1.3.3 Regulatory History

1.3.3.1 Site Discovery

Contamination was first identified at the Site in late 1993/early 1994 when the Washington State Department of Health (WDOH) sampled 18 private water-supply wells in the area as part of a routine sampling program. PCE was detected in 6 of the 18 water-supply wells. These 6 wells were screened in the shallow aquifer and contained PCE ranging from 3.3 micrograms per liter (µg/L) to 2,165 µg/L (Ecology 1999a). The drinking water maximum contaminant level (MCL) for PCE, as promulgated by EPA, is 5 µg/L. Lewis County Public Services informed affected well owners of the sampling results and advised them to obtain alternative sources of drinking water. Ecology began supplying water for drinking, cooking, and bathing purposes to affected well owners. In 1996, WDOH resampled 5 of the 6 PCE-contaminated water supply wells and found that concentrations had increased slightly from those measured in 1993 and 1994. EPA took over the responsibility for supplying bottled water to affected residences in July 2001.

1.3.3.2 Breen Property Drums and Drum Removal Activity

In 1996, Ecology learned from a confidential source that drums containing solvents might have been buried on the Breen Property. Ecology initiated an investigation that included a geophysical survey by Geo-Recon International (Geo-Recon 1996) and a subsurface investigation by Science Applications International Corporation (SAIC). Between October 1997 and July 1998, Ecology performed quarterly sampling of monitoring wells installed by SAIC and some private water-supply wells. In spring 1998, Ecology contracted Transglobal Environmental Geosciences (TEG) Northwest, Inc. to conduct an additional subsurface investigation.

In August 1999, Breen entered into an Agreed Order with Ecology and contracted for an additional investigation on the Breen Property. This investigation included a geophysical survey by Northwest Geophysical Associates in August 1999 and additional subsurface investigation by GeoEngineers, Inc. In September 1999, 70 drums and a number of pails and cans were removed from beneath Building B on the Breen Property. All of the drums contained a black viscous product (sludge) and water, as groundwater had seeped into the leaking drums. PCE and several of its degradation products, including trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE), were detected in the contents of some drums and in water sampled from the excavations during the drum removal (GeoEngineers 2001). The drum removal remedial effort is discussed in more detail in Section 2.6.

1.3.3.3 Discovery of HRIA Source Area

A second source of contamination was identified in the area between North Hamilton Road and I-5 around Berwick Creek during the investigation conducted by TEG for Ecology in the spring of 1998. TEG advanced direct push (i.e., Stratoprobe™) borings across the Site and collected groundwater samples. The highest concentration of PCE (60,000 µg/L) was detected in a boring advanced between Berwick Creek and North Hamilton Road approximately 40 feet east of the United Rentals property. PCE concentrations in groundwater sampled from adjacent borings ranged from 22,000 µg/L to 57,000 µg/L (Ecology 1999a), indicating a second source area at the Site.

1.3.3.4 Listing of Site

On July 27, 2000, the Site was added to the EPA National Priorities List (NPL).

On October 31, 2001, an Administrative Order on Consent (AOC) was signed between EPA and Breen (EPA 2001). In accordance with the AOC, Breen (through their consultant, Farallon Consulting, L.L.C. [Farallon]) initiated Phase I RI activities in July 2002 under EPA oversight to investigate the COPCs in the shallow aquifer at the Breen Property and in the Thurman Berwick Creek Area.

1.3.3.5 Expansion of Municipal Water Supply Line to Impacted Properties

In 2000, the EPA Superfund Technical Assistance and Response Team (START) contractor, Ecology and Environment, Inc. (E&E), began a phased removal assessment, which included installing soil borings and new groundwater monitoring wells and collecting subsurface soil and groundwater samples in and near the HRIA to evaluate the extent of impacts to private water-supply systems. The assessment resulted in the expansion of the City of Chehalis municipal water-supply system.

In November 2002, E&E completed the installation of the public water supply line on behalf of EPA and the City of Chehalis (E&E 2003). A total of 18 properties (15 residential and 3 commercial) were connected. A property was selected for connection to the City's public water-supply system if it met one of the criteria listed below.

- The private well that provided potable water to the residents or workers at the property contained detectable concentrations of PCE.
- Based on the projected 5-year migration of the PCE plume, the property had a future potential to be affected by PCE-contaminated groundwater.

The location of the water supply line and properties connected to the line are shown in **Figure 1-3**.

Section 2
Previous Environmental Investigations

Numerous investigations have been conducted across the Site from 1993 to 2010 by a number of parties to determine the extent of contamination and its potential impacts. This section provides a summary of activities for each investigation and the resulting data that were utilized to develop this RI. The investigation summaries are provided in chronological order. A history of all investigations conducted at the Site with key findings is summarized in **Table 2-1**.

Site-wide COPCs are PCE and its daughter/degradation products (TCE, cis-1,2- DCE, and vinyl chloride), and the chemicals tetrahydrofuran and methylene chloride. Total Petroleum Hydrocarbons (TPH) are considered presumptive COPCs until proven otherwise. In general, these contaminants are found in subsurface soils and groundwater. In groundwater, contamination is found in a shallow aquifer that occurs between approximately 5 feet and 50 feet below ground surface (bgs). For the purposes of this RI Report, the upper zone of the shallow aquifer refers to the portion at or above 25 feet bgs; the lower zone is the portion that occurs deeper than 25 feet bgs and extends to the top of a silt and clay aquitard, which is typically encountered at approximately 50 feet bgs. From 20 to 30 feet the shallow aquifer appears to transition from high PCE concentrations in the upper zone to intermediate concentrations of PCE before returning to high concentrations at depths greater than 30 feet. This interval needs further characterization, but it suggests stratification as a result of the groundwater flow regime and the tendency for PCE to sink.

A deeper aquifer underlies the Site and is separated from the shallow aquifer by the silt and clay aquitard noted above. The deeper aquifer occurs at depths greater than 150 feet bgs in the area of the HRIA. Sampling results for the deeper aquifer wells have historically been "non-detect" for PCE, except for three isolated detections (Section 4.4.5).

Historical sampling results and data used to assess the nature and extent of contamination across the Site are included in **Tables 2-2** through **2-11** and **Appendix A**, and are discussed in Section 4. The locations of all sampling points are shown on **Plates 1**, **2,** and **3** in **Appendix B.** Sampling points at and adjacent to the HRIA and the Breen Property are also shown on **Figures 2-1** and **2-2**, respectively. Sampling points in Berwick Creek are shown on **Figure 2-3**, and sampling points in Dillenbaugh Creek are shown on **Figure 2-4**.

2.1 WDOH Drinking Water Investigation – 1993-1994

As discussed in Section 1.3.3.1, WDOH sampled 18 private water-supply wells in the area (PW-1 through PW-18) in late 1993 and early 1994 as part of a routine sampling program. The private well locations are shown on **Figure 1-2**; however, the locations of four private wells (PW10, PW11, PW12, and PW18) were not well documented at the time and are presently unknown. PCE was detected at six of the wells (PW-2, PW-3, PW-4, PW-5, PW-7, and PW-9) at concentrations ranging between 3.3 and 2,165 µg/L. The highest PCE concentration occurred at PW-9 on the Thurman Property (Ecology 1999a).

2.2 WDOH Drinking Water Investigation – 1996

In June 1996, WDOH re-sampled 5 of the 6 PCE-contaminated water-supply wells identified during the 1993/1994 investigation and found that concentrations had increased slightly (Ecology 1999b). The five wells re-sampled were PW-2, PW-3, PW-4, PW-5, and PW-9 (**Figure 1-2).** PCE concentrations ranged from 5.8 to 3,009 µg/L, with the highest concentration in PW-9.

2.3 Ecology Investigation – 1996-1997

In 1996, Ecology learned from a confidential source that drums containing solvents might have been buried on the Breen Property and initiated an investigation to confirm this allegation. The investigation included a geophysical survey by Geo-Recon International (Geo-Recon 1996) and a subsurface investigation by SAIC as summarized below.

Soil Sampling

SAIC (1997) collected subsurface soil samples adjacent to and on the Breen Property using a hollow-stem auger equipped with a split-spoon sampler. Eight borings (MW-1 through MW-8) were drilled and all extended to the silt and clay aquitard below the shallow aquifer (average depth approximately 46 feet bgs). Soil samples were collected at various depths throughout the shallow aquifer down to 46 feet and were analyzed for volatile organic compounds (VOCs) using EPA Method 8260. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.004 milligrams per kilogram [mg/kg]) to 0.023 mg/kg at MW-5.

Groundwater Sampling

SAIC installed monitoring wells in each of the eight borings described above and screened the bottom 10 feet of each well. The newly installed monitoring wells and select private wells were sampled. Monitoring wells were purged using either disposable bailers or a Grundfos Redi-Flo2 submersible pump. All samples were collected using disposable bailers. Samples were analyzed using EPA Method 8260. PCE was detected in monitoring wells MW-1 through MW-8 at concentrations ranging from 3 to 1,500 µg/L. PCE concentrations in private wells PW-2, PW-3, PW-4, PW-5, PW-7, and PW-9 ranged from 7 to 2,700 µg/L.

2.4 Ecology Quarterly Groundwater Sampling – 1997-2001

Between October 1997 and September 2000, Ecology performed quarterly sampling of the monitoring wells installed by SAIC and some private water-supply wells, as well as collecting some limited soil and surface water samples (Ecology 1999b and 2000). Additional sampling was conducted in 2001 but

the data was not formally reported by Ecology. Ecology provided a database containing the 2001 data that has been included in the RI data set (Ecology 2001).

Soil Sampling

In January 1998, Ecology (1999b) collected six soil samples (SB-1 through SB-6) near PW-9 on the Thurman Property using a JMC portable soil sampler. PCE concentrations were all non-detect at the laboratory reporting limit (<1.6 mg/kg). The samples were analyzed by EPA Method 8260. Information on the sample depth intervals has been lost; however, it is known that the samples were surface or near surface samples as the hand-operated JMC sampler was only driven to a maximum depth of 6 feet bgs during the investigation (Ecology 1999b).

Groundwater Sampling

In May 1999, Ecology installed monitoring and recovery wells MW-R1 through MW-R7 in the HRIA (**Figure 2-1** and **Plate 1)** (Ecology 2000). Based on a review of the 2000 investigation report, the purposes of the wells were to serve as monitoring locations and, if deemed appropriate, as recovery wells. Based on correspondence with EPA, the wells continue to serve as monitoring points and have not been utilized as recovery wells (EPA 2011a). All wells were screened in the upper zone of the shallow aquifer and PCE concentrations for groundwater ranged from 16 to 36,100 µg/L at the time of the investigation. The highest PCE concentration occurred at MW-R6.

Ecology continued quarterly monitoring of permanent monitoring wells MW-1 through MW-8 and private wells PW-2 through PW-20 from October 1997 to September 2000 and began quarterly monitoring of wells MW-R1 through MW-R7 once they were installed. Groundwater samples from the monitoring wells were collected using a stainless-steel submersible pump and a low-flow sampling technique. Samples were analyzed for VOCs using EPA Method 8260.

Diesel analysis was conducted on a sample from PW-21 (**Figure 1-2**). Diesel was non-detect at a method reporting limit (MRL) of 16 µg/L. The results are included in **Appendix A**, **Table A-4**.

Groundwater samples collected from two private wells (PW-5 and PW-21) were analyzed for semi-volatile organic compounds (SVOCs) using EPA Method 8270. In addition, pesticides analysis was conducted on a sample collected from PW-5. No SVOCs or pesticides were detected above laboratory detection limits.

Surface Water Sampling

Four surface water samples were collected from Berwick Creek by Ecology. Samples were collected directly into sample containers at the approximate midpoint of the creek channel. The samples were identified as SW-1 through SW-4 (**Figure 2-3**) and were analyzed for VOCs. The results are summarized in **Table 2-4** and **Appendix A**, **Table A-5**. PCE concentrations ranged from non-detect at the laboratory reporting limit (<1) to 16 µg/L. The highest concentration of PCE occurred at SW-1.

2.5 Ecology Subsurface Investigation – 1998

In Spring 1998, Ecology contracted TEG to conduct an additional subsurface investigation (Ecology 1999a). TEG advanced 28 borings during two rounds of fieldwork conducted in March through April 1998.

Soil Sampling

In March/April 1998, TEG collected surface and near surface soil samples from 7 of the 28 borings (B21 through B27) utilizing direct-push technology (DPT) methods (e.g., Strataprobe™ or Geoprobe®). Five of the seven borings encircled the United Rentals building and two were located on the east side of Hamilton Road directly across from the United Rentals Building. Samples were analyzed for specific halogenated VOCs using EPA Method 8010/8020. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.05 mg/kg) to 5.24 mg/kg. PCE concentrations were highest at B22.

Groundwater Sampling

TEG's March/April investigation also included collecting groundwater samples from 26 of the 28 borings (B1 through B8; B11 through B20; B23 through B27; and B2A through B2D) using DPT methods. The borings were drilled at scattered locations around the Breen Property, along Hamilton Road between the HRIA and Labree Road, and on the HRIA as described above for soil sampling. Groundwater was sampled to depths of 35 feet bgs in the shallow aquifer from temporary wells installed in the DPT borings (Ecology 1999a). Samples were collected using a combination of a peristaltic pump and syringe to help minimize VOC loss. Samples were analyzed for specific halogenated VOCs and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8010/8020. Detected PCE concentrations ranged from 3.2 to 60,000 µg/L. The highest PCE concentration was detected in a groundwater sample collected at a depth of 20 feet bgs in B2. This investigation identified a source area within the HRIA (situated around boring B2).

2.6 Breen Investigation and Drum Removal – 1999

In August 1999, Breen entered into an Agreed Order with Ecology and contracted for additional investigations on the Breen Property. Activities included a geophysical survey conducted by Northwest Geophysical Associates in August 1999, an additional investigation conducted by GeoEngineers, Inc. in August/September 1999, and a drum removal remedial action conducted by GeoEngineers in September 1999 (GeoEngineers 2001).

Drum Removal

In August 1999, prior to conducting a geophysical survey inside Building B, the concrete floor in the southern end of the building was broken up using a hydraulic breaker and track-mounted excavator to eliminate metal interferences in the floor for the survey. The broken concrete was removed using a backhoe. The survey identified an anomaly in the southern portion of Building B where the slab had been removed.

In August 1999, a backhoe was used to investigate the southern end of Building B where the anomaly was detected. The backhoe encountered a drum a few inches below the surface and inadvertently punctured it in the process. Approximately 20 gallons of water and sludge leaked into the exploratory excavation. The area was then secured pending preparation of a work plan for drum removal.

In September 1999, 70 drums and a number of pails and cans were removed from beneath Building B on the Breen Property, along with some impacted soil. All of the drums contained a black viscous product (sludge) and water, as groundwater had seeped into leaking drums. The condition of the various drums was not reported. Samples were collected from two of the drums to characterize the waste. Results are summarized in **Appendix A, Table A-7**. Based on the laboratory results, the drums

appeared to contain "primarily lubrication oil, grease, and solvents typically associated with paint, paint residue, and degreasing" (GeoEngineers 2001). PCE and its degradation products TCE and cis-1,2-DCE were detected in the contents of the drums and in water samples collected from the drums and excavation during drum excavations.

Petroleum staining, and petroleum and solvent odors were detected in soil during the drum removal. GeoEngineers excavated and removed soil from the excavation based on field evidence of contamination. Confirmatory soil samples were collected at 4 and 9 feet bgs along the walls of the excavation and from the base of the excavation (ranging from 10 to 20 feet bgs). The samples were analyzed for VOCs by EPA 8021B and gasoline-range or diesel-range petroleum hydrocarbons using Northwest Methods NWTPH-Gx and NWTPH-Dx. Areas of the excavation where analytical results indicated exceedances of the Washington State Model Toxics Control Act (MTCA) Method A and B cleanup levels applicable at the time for petroleum hydrocarbons, PCE, and PCE degradation products were over-excavated and re-sampled.

GeoEngineers pumped water that entered the excavation during remedial efforts to a 2,000-gallon aboveground storage tank. A water sample from the excavation was collected for laboratory analysis. Results are summarized in **Appendix A, Table A-7**. PCE was detected in a water sample collected from the excavation at 2,800 µg/L. Recovered water was treated using a granular activated carbon filter and then transported to the City of Longview sewage treatment plant for disposal.

Confirmatory soil sample results from the excavation are summarized in **Appendix A**, **Table A-1** and **Table A-2**. Soil samples collected from the drum removal excavation included EX-01 through EX-22, and several miscellaneous locations shown as EX. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.05 mg/kg) to 322 mg/kg. The highest PCE concentration was at a miscellaneous EX location at a depth of 14 feet bgs.

Approximately 600 tons of soil were removed from the final excavation limits for offsite disposal. Soil was removed up to a maximum depth of 20 feet bgs. Contaminants were either not detected or were detected below MTCA Method A and B cleanup levels at the final excavation limits.

Additional Soil Sampling

GeoEngineers (2001) collected soil samples from the Breen Property using DPT methods at eight locations (SP-1 through SP-8) and at various depths ranging from 2.5 to 12 feet bgs (**Figure 2-2**). Borings SP-1 through SP-3 were located just west of the wash-down pad and borings SP-5 through SP-8 were located around Building B. These boring samples were analyzed for VOCs using EPA Method 8021B. PCE concentrations ranged from less than laboratory reporting limits (<0.05 mg/kg) to 0.0586 mg/kg. The highest PCE concentration was at SP-7.

Groundwater Sampling

GeoEngineers collected groundwater samples from temporary wells installed in SP-1 through SP-8 at depths of 15 and 40 feet bgs using a peristaltic pump. Samples were analyzed for VOCs using EPA Method 8021B. PCE concentrations ranged from non-detect at the laboratory reporting limit (<1.0 µg/L) to 1,170 µg/L. The highest concentration of PCE was detected in the sample collected at a depth of 40 feet bgs in SP-4.

Investigation of Vertically-Oriented Pipe (Torpedo Tube)

On December 7, 1999, GeoEngineers evaluated a vertically-oriented pipe located in the ground west of Building B (GeoEngineers 2001). The purpose of the pipe is unknown but Ecology suspected it may have been used for disposal. GeoEngineers reported the pipe as being 23 inches in diameter and extending down approximately 13 feet. Groundwater was encountered at 9 feet bgs within the pipe at the time of the investigation. GeoEngineers collected a water sample from the pipe for analysis of halogenated VOCs by EPA Method 8021B. Halogenated VOCs, including PCE, were not detected.

Ecology used markings observed on the pipe to track that it had originally been a military transport container for a torpedo. After this discovery, the vertically-oriented pipe was subsequently identified as the Torpedo Tube (**Figure 2-2** and **Plate 1**).

2.7 EPA START Phased Removal Assessment – 2000-2001

In 2000, the EPA START contractor, E&E, began a phased removal assessment, which included installing soil borings and groundwater monitoring wells and collecting subsurface soil and groundwater samples in and near the HRIA. The assessment resulted in the expansion of the City of Chehalis municipal water-supply system as discussed in Section 1.3.3.5. E&E conducted four phases of investigations in the HRIA.

Soil Sampling

Phase I investigations (E&E 2000) occurred in June and July 2000 and included collection of surface, near surface, and subsurface soil samples (AB-1 through AB-10, GP-1 through GP-4, GP-A3, and GP-A4) using DPT or hollow-stem auger rigs. Samples were collected at multiple depths throughout the shallow aquifer (down to 44-48 feet bgs) at AB-1 through AB-10 and from GP-A3 and GP-A4. Samples from GP-1 through GP-4 were collected from multiple depths down to 28 and 32 feet. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.07 mg/kg) to an estimated 13 mg/kg. The highest PCE concentration was found at GP-4. Samples were either analyzed by EPA Method 8260 and/or by the Environmental Services Assistance Team (ESAT) mobile laboratory.

Phase II investigations (E&E 2000) were conducted in August 2000 and included collecting soil samples from one boring (AB-11) and during monitoring well and additional dual purpose monitoring/recovery well installations[1] (MW-9, MW-10, and MW-R8 through MW-R11). Borings were drilled using a hollow-stem auger equipped with a split-spoon sampler. Samples were collected at multiple depths down to about 35 feet bgs. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.064 mg/kg) to an estimated 53 mg/kg. The highest PCE concentration was found at MW-9.

Phase III investigations (E&E 2001) occurred in January and February 2001 and included collecting soil samples during installation of additional monitoring wells (MW-11 through MW-16) on the northeast side of I-5. Monitoring well borings were drilled using a hollow-stem auger equipped with a

[1] Similar to the 1999 Ecology site investigation, the purposes of the dual purpose monitoring/recovery wells were to serve as monitoring locations and, if deemed appropriate, as recovery wells. Based on correspondence with EPA, the wells continue to serve as monitoring points and are not serving as active recovery wells (EPA, 2011a).

split-spoon sampler. PCE was not detected in the soil samples above laboratory reporting limits. Reporting limits ranged from 0.059 to 0.071 mg/kg.

Phase IV investigations (E&E 2002) were conducted in October and November 2001 to assist in the evaluation of a proposed water supply pipeline route. Ninety soil borings were installed (GP-102 through GP-191), and samples were collected at depths of up to 8 feet bgs every 50 feet along North Hamilton Road to the intersection with Labree Road using DPT methods. Samples were analyzed for VOCs using EPA Method 8260. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.001 mg/kg) to 0.11 mg/kg. A soil sample collected at GP-163 contained the highest PCE concentration.

Groundwater Sampling

Phase I investigations (E&E 2000) in June and July 2000 included collecting groundwater samples from temporary wells installed in DPT borings AB-1 through AB-10, GP-1 through GP-3, GP-A3, and GP-A4. Samples were analyzed by EPA Method 8260. PCE concentrations ranged from non-detect at the laboratory reporting limit (<1 µg/L) to 190,000 µg/L. The highest PCE concentration was detected in a sample collected at 16 feet bgs in GP-1.

Two groundwater samples, GP-1 and GP-3, were analyzed for gasoline-range total petroleum hydrocarbons (TPH-G) using NWTPH-Gx. A concentration of 4,200 µg/L was detected at GP-1. TPH-G was non-detect at a MRL of 100 µg/L in GP-3.

Phase II investigations (E&E 2000) in August 2000 included sampling existing monitoring wells (MW-1 through MW-8, and MW-R1 through MW-R7), private wells (PW-3, PW-9, and PW-14) and newly installed HRIA monitoring wells (MW-9, MW-10, and MW-R8 through MW-R11). MW-9 and MW-10 were screened in the lower 20 feet of the shallow aquifer, and MW-R8 through MW-R11 were screened across all or most of the aquifer thickness. PCE concentrations ranged from non-detect at the laboratory reporting limit (<1 µg/L) to 44,000 µg/L. The highest PCE concentration was detected in MW-9. Samples were analyzed by EPA Method 8260.

Phase III investigations (E&E 2001) occurred between January and May 2001. The investigations in January and February 2001 included sampling existing monitoring wells and private wells. In addition, upgradient monitoring wells MW-11 through MW-16 were installed along the northwestern edge of I-5 and sampled. PCE concentrations in monitoring wells (MW-1 through MW-16), monitoring and recovery wells (MW-R1 through MW-R11), and private wells (PW-3, PW-4, PW-6, PW-9, and PW-20) ranged from non-detect at the laboratory reporting limit (<1 µg/L) to 56,000 µg/L. The highest PCE concentration was detected in MW-R5. Samples were collected from the monitoring wells using dedicated, submersible EasyPumps. Samples from the private wells were collected using the dedicated well pump.

Additional sampling of private wells was conducted in May 2001 (E&E 2002). Detected PCE concentrations from private wells PW-4, PW-7, PW-16, PW-17, PW-21, and PW-22 ranged from 3 µg/L at PW-4 to 710 µg/L at PW-7. PW-7 is located just downgradient of the Thurman Berwick Creek Area. Samples from the private wells were collected using the dedicated well pump.

Phase IV investigations (E&E 2002) were conducted in October and November 2001. PCE concentrations from monitoring wells (MW-1 through MW-10), monitoring/recovery wells (MW-R1 through MW-R11), and private wells (PW-1, PW-3 through PW-9, PW-16, PW-17, and PW-21 through

PW-37) ranged from non-detect at the laboratory reporting limit (<1 µg/L) to a maximum of 61,000 µg/L. The highest PCE concentration was detected in MW-R5. Monitoring wells were sampled using dedicated, submersible EasyPumps, except on the Breen Property where dedicated bailers were used. Samples from the private wells were collected using the dedicated well pump.

2.8 Breen Phase I RI – 2002 and Phase II RI – 2003-2004

In accordance with the AOC signed by EPA and Breen in 2001, Breen (through their consultant, Farallon) initiated Phase I RI activities in July 2002 under EPA oversight to investigate the COPCs in the shallow aquifer at the Breen Property and in the Thurman Berwick Creek Area. Farallon used DPT sampling methods to collect soil and groundwater samples on the Breen Property and in the Thurman Berwick Creek Area. They also conducted a soil gas investigation on the Breen Property, collected surface water and stream-bed soil samples from Berwick Creek, and sampled groundwater from existing monitoring and private water-supply wells across the Site (Farallon 2003).

Beginning in late 2003, Farallon initiated Phase II RI sampling to better define the nature and extent of contamination on and downgradient of the Breen Property and in the Thurman Berwick Creek Area. Activities included soil and groundwater sample collection, installing and sampling monitoring wells, surface water sample collection, completion of a pump test, and various other activities (Farallon 2004). Phase II RI activities ended in 2004 when EPA and Breen began negotiating a cash-out settlement. EPA received data collected in 2003 by Farallon, but a Phase II RI Report was never submitted by Breen. The data and EPA's interpretation of the data are presented in this RI Report to better understand Site-wide groundwater contamination, particularly with respect to contamination attributable to the HRIA.

Soil Sampling

In June/July 2002, Farallon collected soil samples at reconnaissance stations (RS-1, RS-2, RS-5, RS-8, RS-8A, RS-9, RS-12, and RS-16); at monitoring wells MW-18, MW-19, and MW-21 on the Breen Property (**Figure 2-2**); at monitoring wells MW-23 and MW-24 located between the HRIA and the Thurman Berwick Creek Area (**Figure 2-1**), and at monitoring well MW-25 located in farmland approximately 2,200 feet northwest of the Breen Property. Soil samples were collected at depths between 5 and 49 feet bgs. Soil sampling was completed primarily using a hollow-stem auger, but several samples were collected using DPT methods. Samples were analyzed using EPA Method 8260. PCE concentrations ranged from 0.003 mg/kg to an estimated 0.36 mg/kg. The highest PCE concentration was detected in RS-2 at a depth of 5 feet bgs.

In September 2003, Farallon collected soil samples from two hollow stem auger borings, RS-30 and RS-31, located in the Thurman Berwick Creek Area. Sample depths were between 15 and 20 feet bgs. Samples were analyzed using EPA Method 8260. PCE concentrations ranged from 0.027 mg/kg to an estimated 1.3 mg/kg. The highest PCE concentration was detected in a soil sample collected from RS-31.

In April 2004, Farallon collected surface soil samples from two borings (CB-1 and CB-2) situated along Berwick Creek just north of where the creek crosses under North Hamilton Road, and from one boring (DB-1) located in a drainage ditch south of the Breen wash-down pad. Soil sampling was completed primarily using hand augers. Samples were analyzed using EPA Method 8260. PCE concentrations were non-detect at the laboratory reporting limit (<0.0015 mg/kg) in all samples.

Groundwater Sampling

Farallon collected groundwater samples in June/July 2002, August 2002, November 2002, February 2003, August/September 2003, November 2003, April 2004, and June 2004 (Farallon 2003 and 2004). Samples were collected using low-flow sampling procedures from existing monitoring wells (MW-1 through MW-14 and MW-R1 through MW-R11), private wells (PW-1, PW-3 through PW-9, PW-21, PW-23, PW-24, PW-26, PW-32, PW-34, and PW-36 through PW-39), and temporary wells installed at reconnaissance station locations on or downgradient of the Breen Property and in the Thurman Berwick Creek Area (RS-1 through RS-24, RS-30, RS-31, RS-33, RS-41 through RS-43, and RS-46 through RS-49).

New monitoring wells were installed on the Breen Property (MW-17 through MW-21, MW-33, and MW-34), in the Thurman Berwick Creek Area (MW-31 and MW-32), and between the HRIA and the Thurman Berwick Creek Area (MW-22 through MW-24). In addition, monitoring wells were installed approximately 2,200 feet downgradient (MW-25) and 6,400 feet downgradient (MW-28) of the Breen Property. Half of the new wells were screened in the lower zone of the shallow aquifer (MW-18, MW-19, MW-21, MW-23 through 25, and MW-27), and nearly half were screened in the upper zone (MW-17, MW-20, MW-26, MW-28, MW-29, and MW-31 through MW-33). MW-34 was screened across nearly the full thickness of the aquifer.

PCE concentrations in groundwater sampled from existing wells were comparable to or less than concentrations found during previous investigations (e.g., Ecology or E&E). PCE in the "RS" set of samples ranged from 1.1 to 2,400 µg/L. The highest PCE concentration was detected in RS-7, located near the wash-down pad, at a depth of 24 feet bgs. PCE concentrations in the newly installed monitoring wells ranged from non-detect at the laboratory reporting limit (<0.2 µg/L) to 2,300 µg/L. The highest PCE concentration was detected in MW-31 located in the Thurman Berwick Creek Area.

Surface Water Sampling

Farallon collected four rounds of surface water samples from Berwick Creek between July 2002 and November 2003. Samples were collected from six stations, SW-5 through SW-10 (**Figure 2-3**). The surface water stations are primarily located near the Breen Property or in the vicinity of the HRIA. Samples were collected using a peristaltic pump with dedicated tubing. A rigid sampling pole was used to insert the flexible tubing into the stream channel. The tubing intake was placed mid-channel and to a depth that was approximately six-tenths of the depth from the stream surface to the stream bottom.

The surface water samples were analyzed for VOCs and the results are summarized in **Table 2-4** and **Appendix A**, **Table A-5**. PCE concentrations ranged from non-detect at the laboratory reporting limit (<0.2) to 40 µg/L. The November 2002 SW-5 sample contained the highest PCE concentration. Its duplicate sample was only half as much (20 µg/L), but still higher than other sampling station results found during this sampling event and subsequent surface water sampling events completed by EPA.

Farallon also analyzed the six July 2002 surface water samples for gasoline-range petroleum hydrocarbons. The samples, collected from surface water monitoring stations SW-5 through SW-10, were non-detect for gasoline at a MRL of 100 µg/L. Results for the six surface water samples are summarized in **Appendix A**, **Table A-6**.

Creek Bed Sediment/Soil Sampling

Creek channel sediment samples CC-1 through CC-9 were collected by Farallon (2004) during Breen Phase II RI/FS sampling (**Figure 2-3**). The samples were collected from various locations along Berwick Creek in the Thurman Berwick Creek Area south of the Breen Property. The samples were collected from the creek bed sediment at a depth of approximately 1 foot bgs using a hand-held diameter drive sampler. PCE was not detected in any of the samples.

Soil Gas Sampling

Farallon conducted a soil gas survey in November 2002 at two areas (near RS-1/RS-2 and RS-7) on the Breen Property to better define potential PCE sources. PCE was not detected in any of the soil gas samples, so it was concluded that these areas do not contain a PCE source. Soil gas analytical results are shown in **Table 2-6**.

2.9 EPA Engineering Evaluation/Cost Analysis Investigation at the HRIA - 2003

In 2003, EPA contractor URS Group, Inc. (URS) began additional field investigations at the HRIA to support completion of an Engineering Evaluation/Cost Analysis (EE/CA) (URS 2004). The purpose of the field investigation was to better define the extent of soil and groundwater contamination, including defining the extent of dense non-aqueous phase liquid (DNAPL) in the Berwick Creek bed and the shallow aquifer as related to a potential release or spill into Berwick Creek (which was estimated to have occurred around 1990 based on plume migration information but the exact date of the spill/release is unknown). URS also evaluated potential alternatives for remediation of contamination in the HRIA; however, a remedy was not chosen at that time because additional investigations were required to determine the nature and extent of contamination.

Soil Sampling

During the investigation, URS collected soil samples from monitoring well borings (MW-600 through MW-608), DPT borings (GP-500 through GP-518), and auger borings (AB-650 through AB-652). Samples were collected at several depths between approximately 2 and 50 feet bgs in MW-600 through MW-605 and in AB-650 through AB-652. Samples were collected at various depths to a maximum depth of 30 feet bgs in GP-500 through GP-518, and at several depths between 31 feet bgs and the top of the silt and clay aquitard at approximately 50 feet bgs in MW-606 through MW-608.

A total of 359 samples were collected using DPT or hollow-stem auger drilling methods. Soil samples were collected and preserved with methanol in accordance with EPA Method 5035. Samples were analyzed for PCE using the mobile laboratory (ESAT) and/or EPA Method 8260. The maximum concentration of PCE, 3,220 mg/kg, was detected at GP-502 at a depth of 28 feet bgs. Results are summarized on **Table 2-2**.

Select soil samples were also analyzed for a variety of physical characteristics and metals. The results are summarized in **Tables 2-9** and **2-10**.

Groundwater Sampling

During the EE/CA investigation, groundwater samples were collected from newly installed monitoring wells and from temporary test wells installed in DPT and hollow-stem auger borings. New wells MW-600 through MW-608 were screened across all or most of the shallow aquifer, but sampling at multiple

depths was conducted when the wells were installed. Groundwater samples were collected at the DPT boring locations using a temporary stainless steel well screen (Screen Point 16 Groundwater Sampler) inserted through the rods. Groundwater samples were collected from hollow-stem auger borings using the hydropunch method. Samples were analyzed using ESAT PCE analysis and/or EPA Method 8260.

The sampling event targeted the projected PCE release area north of North Hamilton Road around Berwick Creek, although MW-606 through MW-608 were installed along a line about 200 feet downgradient of the Berwick Creek source area. Detected PCE concentrations from new wells (MW-600 through MW-608) ranged from 55 to 2,720,000 µg/L. The highest PCE concentration was detected in MW-602 at a depth of 14.5 feet bgs. This high concentration of PCE is an order of magnitude higher than its solubility limit in water, indicating that DNAPL was present in the groundwater sample. The maximum PCE concentration in groundwater samples from DPT borings (GP-500 through GP-531) and auger borings (AB-650 through AB-652) occurred in a sample collected between 14 and 16 feet bgs at GP-501, which contained 217,000 µg/L. Groundwater sampling depths were limited to a maximum of 32 feet bgs in GP-500 through GP-531; in contrast, the sampling depths in AB-650 through 652 ranged from 34 to 46 feet bgs.

Conventional chemistry analyses (sulfate, sulfides, nitrate/nitrites, chloride, iron, and alkalinity) were conducted on samples collected from 9 wells within the HRIA during the EE/CA investigation (URS 2004). The results of these analyses are shown in **Table 2-11**.

Long-term pumping tests were also conducted in wells MW-602 and MW-605 to determine horizontal hydraulic conductivity; results are summarized in Section 3.3.

Creek Bed Sediment/Soil Sampling

URS collected a total of 39 bed and bank sediment samples (BS-451 through BS-470 and SB-400 through SB-419) from Berwick Creek and the two unnamed ditches that discharge to Berwick Creek, in order to aid in HRIA source area identification and delineation. Creek bed samples were collected from 0 to 1 foot below the surface of the creek bed using a hand-held drive-point tool called a Large Bore Sampler. Creek bank samples were collected using the same tool driven to a depth of 2 to 3 feet bgs.

The maximum PCE concentration detected in the samples was 5,220 mg/kg at SB-409. The results of the sampling provided strong evidence of a release to Berwick Creek between the two unnamed ditches. Analytical results from all creek sediment/soil samples are shown in **Table 2-5**.

Soil Gas Sampling

URS collected soil gas samples in the vicinity of Berwick Creek and I-5, north of the HRIA, using DPT and a vacuum pump (**Figure 2-1**; SG-200 through SG-205, SG-207 through SG-209, and SG-211 through SG-236). As a quality assurance check, two samples were collected from locations where PCE was not expected to be present (SG-201 and SG-203); PCE was not detected in either sample. Three samples were collected from areas where PCE was expected to be present (SG-202, SG-204, and SG-205) and PCE was detected in each of these samples. The remaining samples were used to assess the probability of a spill along I-5. PCE concentrations in the remaining samples were generally very low. All but two samples contained PCE at concentrations less than 1 part per million by volume [ppm-v]. The results of the URS investigation indicated that the Berwick Creek contamination at the HRIA was likely not related to a spill from I-5. Soil gas analytical results are summarized in **Table 2-6**.

2.10 EPA Supplemental Groundwater and Surface Water Sampling - 2007

In July 2007, Parametrix, on behalf of EPA, conducted supplemental groundwater and surface water sampling across the Site, focusing on the areas immediately downgradient of the HRIA, on the Breen Property, and in the Thurman Berwick Creek Area (Parametrix 2009). Samples were also collected from private wells along Rice Road west of Labree Road, an area that had not been previously sampled, and private wells that had historically contained PCE. The data from this event were used to further define the groundwater contamination, to assess contaminant migration, and to assess potential groundwater-surface water interaction associated with Dillenbaugh Creek.

Groundwater Sampling

Using low-flow sampling procedures, Parametrix sampled 17 existing wells, including 8 private wells and 9 monitoring wells in the HRIA, the Breen Property, the Thurman Berwick Creek Area, and downgradient areas west of Labree Road to evaluate whether significant changes in concentrations had occurred since the previous Site-wide sampling event in 2003/2004. Field parameters were collected during the July 2007 sampling event and are summarized in **Table 2-12.**

The private wells sampled included five locations beyond the end of the public water supply line installed in 2002 (**Figure 1-3**). PCE concentrations in these wells were all non-detect at the laboratory reporting limit of 1.0 µg/L. The maximum PCE concentration of 14 µg/L was detected in the remaining private well (PW-4) located south of the Thurman Berwick Creek Area. While PCE was non-detect at the laboratory reporting (<0.2 µg/L) in PW-4 in 2003, the concentration of PCE in 2007 was much less than typically observed during the 1990s and up to 2001 when PCE concentrations were typically an order of magnitude higher.

For the monitoring wells, the maximum concentration of PCE was observed at MW-R7 (6,100 µg/L), located adjacent to North Hamilton Road, east of the United Rental building. This PCE concentration is consistent with 2003 results and higher than PCE concentrations reported in 1990-2002. Concentrations of PCE in the other 8 monitoring wells located southeast of the Thurman Berwick Creek Area ranged from 600 µg/L at MW-25 (located west of Labree Road) to 2,700 µg/L at MW-32 (2,500 µg/L in the duplicate sample collected from MW-32). PCE concentrations in monitoring wells in and upgradient of the Thurman Berwick Creek Area were within the same order of magnitude as those concentrations observed in 2003 and not notably different, particularly considering that the same magnitude of variation was sometimes observed between different 2002/2003 sampling events. For example, at MW-21, the PCE concentration was 1,500 µg/L in November 2002, 1,800 µg/L in February 2003 and 1,500 µg/L in July 2007. In MW-30, the PCE concentration was 1,700 µg/L in September 2003, 1,300 µg/L in November 2003, and still 1,300 µg/L in July 2007.

Surface Water Sampling

Two surface water samples (CS-1 and CS-2) were collected from Dillenbaugh Creek by Parametrix in July 2007 (**Figure 2-4**). These samples were collected near monitoring well MW-25, located approximately 2,200 feet northwest of the Breen Property. Concentrations of PCE in surface water ranged from 1.7 µg/L at CS-1 to 3.6 µg/L at CS-2. Surface water analytical results for PCE, TCE, and cis-1,2-DCE are summarized in **Table 2-4**. Results for other VOC analyses and petroleum analysis are summarized in **Appendix A**, **Tables A-5** and **A-6,** respectively.

2.11 EPA Air Sampling - 2007

In November 2007, EPA's Emergency Response Team (ERT) conducted air sampling in and around private residences and commercial buildings across the Site to assess potential risks to human health from volatilization of contaminants from groundwater to indoor and ambient air (Lockheed Martin 2008, EPA 2008). A total of 34 samples were collected over a 24-hour time period using SUMMA canisters. The samples were analyzed for VOCs, including PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, methylene chloride, and vinyl chloride.

Vapor intrusion sampling consisted of collecting air samples within residences and commercial building and crawlspaces (if present). Ambient air samples were also collected at several outdoor locations near the residential and commercial buildings. In addition, soil vapor samples were collected from beneath the concrete floor slabs at five commercial buildings and one residence. These samples were collected by coring through the concrete slab and installing a temporary soil gas well. Sampling locations are described in **Table 2-7**.

Low levels of PCE were detected in the majority of the residential, commercial, and ambient locations. Further discussion of air sampling results is presented in Section 4.8, and analytical results are summarized in **Table 2-8.**

2.12 EPA Water Level Measurements - 2010

In May 2010, EPA measured water levels and assessed the condition of most of the monitoring wells at the Site. The results of the assessment are detailed in a report contained in **Appendix C**.

Section 3
Physical Characteristics of the Site

This section describes the physical characteristics of the Site. The description includes the regional and Site-wide topography, drainage, climate, geology, hydrogeology, surface water hydrology, land and groundwater uses, and current ecological conditions.

3.1 Topography, Drainage, and Climate

The Site lies within the Newaukum Prairie, a relatively flat area formed by the Newaukum River. Hills bound the Prairie to the west and east, rising to elevations of 400 to 700 feet above mean sea level (MSL). Site topography ranges from 195 to 210 feet above MSL. Surface water drainage varies from location to location within the area depending on the proximity of surface water features such as Berwick Creek, Dillenbaugh Creek, and the Newaukum River. The valley generally slopes down to the northwest towards the Chehalis River. The regional topography and drainages are shown in **Figure 3-1**.

The Newaukum River flows northwesterly towards its confluence with the Chehalis River about five miles northwest of the Site. Berwick Creek flows through the Site in a general northwest direction and joins Dillenbaugh Creek approximately 1,500 feet northwest of the Breen Property (**Figure 3-1**). Dillenbaugh Creek flows to the northwest and discharges into the Chehalis River.

Average annual precipitation in the Chehalis area is approximately 47 inches, with December being the wettest month (Western Regional Climate Center 2006). An estimated three-quarters of the annual precipitation falls during October through March. The climate of the region includes wet winters and moderately warm, dry summers. The mean average annual temperature for the Chehalis area is about 50 degrees Fahrenheit (ºF).

3.2 Regional and Site Geology

Surficial deposits mapped for the Site area consist of alluvium and Newaukum terrace unit glaciofluvial deposits (Weigle and Foxworthy 1962). The alluvial deposits appear to be what is referred to as the “silt cap” that is reportedly continuous across the Site and ranges between 1 and 15 feet thick. This silt cap is logged as “clay” by some investigators and locally contains sand lenses and stringers. In some cases the silt grades to a silty sand or silty gravel at its contact with the underlying glaciofluvial sediments. This “cap” creates locally confined groundwater conditions in the underlying shallow aquifer.

The Newaukum terrace unit that underlies the alluvial silt cap is a glaciofluvial deposit consisting of sand in a silt and clay matrix. Its maximum depth is approximately 50 feet bgs. Logged soil types within the sand and gravel typically range from fine-grained, poorly sorted sand to coarse gravel, with cobbles prevalent. The silt content of the Newaukum unit sands and gravels varies substantially throughout the unit, with some zones classified as silty sands and silty gravels and other zones classified as clean sands or gravels. The correlation in soil types between nearby borings is poor, indicating a high degree of variation in grain size or silt content within the shallow aquifer. A somewhat laterally extensive bed of poorly sorted sand was identified in borings around Berwick Creek at a depth of about 30 feet bgs. This bed is one of the few examples of a reasonable correlation of a distinct soil layer across multiple borings. Silt lenses ranging from 1 to 7 feet thick have been identified within this unit. This unit contains the shallow aquifer.

The Newaukum terrace unit is underlain by a non-marine sedimentary unit described as thin-bedded "blue" clays (with occasional sand and silt lenses). This bluish-gray clayey silt layer is approximately 100 feet thick and is indurate with depth (Dames and Moore 1994). This layer is believed to be Miocene-Pliocene (Weigle and Foxworthy 1962) and has a fluvial or lacustrine origin. This unit is the aquitard that divides the shallow and deep aquifers at the Site. It appears to be continuous beneath the Site, which is consistent with regional geologic information (Ecology 2005).

Below the silt and clay aquitard is a confined aquifer comprised of older Miocene alluvial sediments deposited by a meandering or braided river system. The groundwater in the deep aquifer occurs in sand lenses and channel deposits ranging from 5 to 70 feet thick and more than 150 feet deep in the area of the HRIA (Dames and Moore 1994). Wells installed in this aquifer in the Newaukum River valley are typically artesian. Private well PW-23 was installed in this aquifer to replace the shallow aquifer well PW-2 located at the south end of the HRIA.

In summary, the current understanding of the Site stratigraphy is as follows:

- Alluvially deposited silt "cap" 1 to 15 feet thick
- Glaciofluvially deposited sand and gravel in a silt and clay matrix 35 to 50 feet thick unit (the shallow aquifer) (Newaukum terrace unit)
- Non-marine sedimentary silt to clay deposit 100 feet thick (aquitard)
- Miocene alluvial sediments, thickness unknown (deep aquifer)

Cross-sections illustrating the distribution and thickness of the geologic units encountered beneath the Site were prepared by Farallon (2003) and URS (2004). Additional cross-sections were also completed between the HRIA and the southeastern corner of the Breen Property along the approximate groundwater flow direction, and from the HRIA through the Thurman Berwick Creek Area. New and previously completed Site cross-sections are included in **Appendix D**. Boring and well logs used to prepare the cross-sections are provided in **Appendix E**.

3.3 Hydrogeology

The groundwater flow direction beneath the HRIA is to the west/northwest, but becomes northwesterly downgradient of the Breen Property. Historical water levels are listed on **Table 3-1**. Historic static water levels have ranged between approximately 1.5 and 10 feet bgs (taking into account whether the

monument is a flush mount, or riser). Water levels can vary several feet seasonally. In any individual well, as much as a 6.47 foot difference has been observed. The highest water level fluctuations have been observed at MW-3, where water levels have ranged from 4.05 feet below the top of casing in February 1997 to 10.52 feet below the top of the casing in September 2002. Groundwater elevation contour maps for the November 2003 and July 2007 monitoring events are shown in **Figures 3-2a, 3-2b,** and **3-3**. Groundwater elevation contours which focus on the source areas for November 2003 are shown in **Figure 3-4**.

Regional investigations conducted by others (Dames and Moore 1994; Ecology 2005) have categorized the shallow aquifer in the area as an unconfined or semi-confined aquifer. However, in the HRIA, the shallow aquifer exhibits the characteristics of a confined or semi-confined aquifer, primarily due to the silt cap immediately above the aquifer and water levels measured 4 to 6 feet above the base of this silt in December 2003 (URS 2004).

The mean vertical hydraulic conductivity of the silt capping the shallow aquifer was measured in the laboratory at 6.3×10^{-7} centimeters per second (cm/s) using soil cores collected during the HRIA EE/CA investigations (URS 2004). The silt cap of the shallow aquifer exhibits vertical hydraulic conductivities less than the 8×10^{-6} cm/s, which is representative of confining layers (Fetter 1980).

In 2000, short-term aquifer pumping tests (over a 55-minute time period) were conducted at HRIA monitoring wells MW-R10 and MW-R11 (E&E 2000). Both of these monitoring wells are screened from 19 to 49 feet bgs. The horizontal hydraulic conductivity in the HRIA was estimated at 4.4×10^{-2} cm/s or 125 feet per day (ft/d) with a flow rate of 14 gallons per minute (gpm) for each well.

The horizontal hydraulic conductivity was also estimated at wells MW-602 and MW-605 based on long-term pumping tests (between 20 to 25 hour time periods) completed during the EE/CA (URS 2004). The tests were conducted at sustainable flow rates of 25 and 6 gpm, respectively. The mean hydraulic conductivity estimated based on these tests was 4.9×10^{-3} cm/s (13.9 ft/d). The range of hydraulic conductivities estimated using the Theis equation for a confined aquifer was 1.7×10^{-3} to 6.0×10^{-3} cm/s (4.8 to 17.0 ft/d). The distance-drawdown analyses for wells downgradient of MW-602, crossgradient of MW-605, and upgradient of MW-605 resulted in estimates of hydraulic conductivity ranging from 3.1×10^{-3} to 6.0×10^{-3} cm/s (8.8 to 17.0 ft/d). The distance-drawdown analysis for wells crossgradient of MW-602 (i.e., parallel to Berwick Creek) resulted in a hydraulic conductivity estimation of 4.9×10^{-2} cm/s (139 ft/d).

Calculated hydraulic conductivity for pump testing completed at the Breen Property showed a value between 5.1×10^{-3} to 6.4×10^{-3} cm/s (14.5 and 18.0 ft/d). No hydraulic conductivity data are available for the downgradient areas west of Labree Road.

The overall groundwater gradient beneath the HRIA is 0.0063 foot per foot (ft/ft) (URS 2004). A localized steeper gradient (approximately 0.016 ft/ft) is apparent immediately downgradient of North Hamilton Road. The average regional gradient in the area of the Site is 0.0055 ft/ft (Ecology 2005).

The groundwater flow rate, or seepage velocity, beneath the Site can be calculated based on the hydraulic conductivity, the average regional groundwater gradient, and the mean effective porosity of the aquifer material (Fetter 1980). The formula for seepage velocity is as follows:

$$vs = (k)(i)/ne$$

Where:
vs – seepage velocity (ft/d)
k – hydraulic conductivity (ft/d)
i – groundwater gradient (ft/ft)
ne – effective porosity

Using the horizontal hydraulic conductivity of 4.8 to 139 ft/d, the HRIA gradient of 0.0063 ft/ft, and an average effective porosity of 0.25, the seepage velocity would range from approximately 0.12 to 3.50 ft/d. Using the average hydraulic conductivity of 13.9 ft/d derived from pumping tests in the HRIA produces a seepage velocity of 0.34 ft/d. However, using the E&E average groundwater gradient for the entire Site of 0.0032 ft/ft and the horizontal hydraulic conductivity range of 4.8 and 139 ft/d, the seepage velocity would range from approximately 0.06 to 1.78 ft/d. If the HRIA average hydraulic conductivity of 13.9 ft/d and the Site-wide gradient of 0.0032 ft/ft is used in the equation, a seepage velocity of 0.18 ft/d is calculated (E&E 2000).

This average hydraulic conductivity (13.9 ft/d) is comparable to the values obtained from pumping tests conducted at the Breen Property. However, it does not incorporate the higher HRIA hydraulic conductivity data from the short-term pumping tests or the cross-gradient distance-drawdown data. If these higher hydraulic conductivities are limited to the HRIA, then the Site-wide seepage velocity of 0.18 ft/d is reasonable. However, if the higher hydraulic conductivities occur beyond the HRIA, the Site-wide seepage velocity of 0.18 ft/d would underestimate the rate of groundwater flow. Moreover, it would not be possible for significant concentrations of PCE to reach MW-25 or RS-20 in 2002 at a groundwater flow rate of 0.18 ft/day unless the source at the Breen Property and/or the Thurman Berwick Creek Area is more than 50 years old, which is unlikely, given the history of Site development or there is another unaccounted for source nearer to these wells.

Site-wide vertical gradients within the shallow aquifer are poorly understood. There are only five locations with paired monitoring wells screened in the shallow aquifer, and only four of those locations have synoptic water level data from both wells (**Table 3-2**). Of these well clusters, two are in the southwestern area of the Breen Property, one in the northwestern area of the Breen Property, and one is just south of North Hamilton Road between the HRIA and the Thurman Berwick Creek Area. The three locations within 200 feet of Berwick Creek (MW-20/21, MW-22/23, and MW-29/30) have upward gradients, while the cluster located further away (MW-17/18) has a downward gradient.

Since completion of the City water main extension in November 2002, production wells local to the HRIA and Thurman Berwick Creek Areas have not been influencing the groundwater flow regime. However, numerous water supply wells exist within a 4 mile radius of these sites and may have some influence on gradient conditions recorded at the Site during these historical investigations. This influence needs further characterization through analytical and/or numerical modeling efforts to enhance understanding of past and present pumping well influence to plume migration and inform institutional controls, if needed, to maintain protection of existing potable water supplies.

3.4 Surface Water Hydrology

There are two primary surface water features at the Site, Berwick Creek and Dillenbaugh Creek (**Figure 1-2**). There are also two ditches with intermittent flows that discharge into Berwick Creek at the HRIA. Both ditches pass under I-5 and flow from east to west (**Figure 2-1**).

Berwick Creek flows through the HRIA from southeast to northwest, turns west at the Breen Property and extends approximately 1,500 feet where it turns towards the north-northwest, meeting Dillenbaugh Creek about 2,100 feet further. Berwick Creek drains into Dillenbaugh Creek, which flows into the Chehalis River. Berwick Creek is classified as a Type F stream at the Site by the Washington State Department of Natural Resources (DNR) [DNR 2010]. A Type F stream is known to be used by fish or meets the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal.

There are no use designations specifically for Berwick Creek in Ecology's Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A-602, Table 602) (Ecology 2006). Ecology lists Berwick Creek as a Category 5 and 4A water body in the 2004 Water Quality Assessment 303(d) list (Ecology 2008) due to the exceedance of fecal coliform.

Dillenbaugh Creek flows roughly southeast to northwest through the downgradient area of the Site. Upstream of the confluence with Berwick Creek, Dillenbaugh Creek is classified as a Type F stream by DNR. However, downstream of the confluence, the creek is classified as Type S. A Type S stream is designated "shorelines of the state."

There are no use designations specifically for Dillenbaugh Creek in WAC 173-201A-602, Table 602. Ecology lists Dillenbaugh Creek as a Category 5 and 4A water body in the 2004 Water Quality Assessment 303(d) list (Ecology 2008). The creek is listed as a Category 5 water body due to an exceedance of dioxin in fish tissue in a section of the creek downstream from the confluence with Berwick Creek. The Category 4A listing is due to the exceedance of fecal coliform.

3.5 Surface Water and Groundwater Interaction

Surface water monitoring on Berwick Creek was conducted as part of the Breen RI/FS (Farallon 2003). A comparison of surface water and groundwater elevations for corresponding monitoring points measured in September and November 2002 indicated that surface water elevations were at or above the potentiometric surface of the shallow aquifer during both events (Farallon 2003). These data indicate that there is a potential for surface water to seasonally discharge to groundwater in areas where the silt cap below the creek bed is thin or permeable. Data for surface water monitoring stations #5 through #10 are shown in **Table 3-3**. Station locations #1 through #4 apparently were not monitored.

Groundwater elevations in monitoring wells adjacent to Berwick Creek within the HRIA were above the approximate surface water elevation (URS 2004) indicating a potential for groundwater to seasonally discharge to surface water in this reach of Berwick Creek. However, at all exploration locations near the creek, the silt cap of the shallow aquifer was found to be present between surface water and groundwater. The low vertical hydraulic conductivity (6.3×10^{-7} cm/s) of the silt cap probably minimizes the groundwater and surface water interaction within the HRIA. However, this low conductivity value is based on bulk hydraulic conductivity measurements that do not include

conductivity which may be locally greater due to fracturing, scouring, or pathways formed by pre-development vegetation roots.

The flow measurements at stations #5 through #10 in September and November 2002 were qualitatively evaluated to determine whether Berwick Creek was losing or gaining water over the reach covered by the surface water monitoring stations. September 2002 measurements (the end of the dry season) recorded little to no flow at the majority of the stations with the exception of stations SW-8 and SW-9, as shown in **Table 3-3**. Flows of approximately 500 and 870 gpm, respectively, were measured at these two stations. November 2002 measurements showed flows of 1,400 gpm at station SW-8 and 1,250 gpm at station SW-9. Collectively, these measurements suggest the possibility that this reach of the creek discharges groundwater as base flow (gaining) during the summer. However, the data are not sufficient to make a quantitative assessment of summer base flow contribution.

3.6 Land and Groundwater Uses

The Site is located in a rural region used for agricultural activities. An estimated 1,200 people live within four miles of OU1 and OU2 and have been identified by EPA as being within the potential area for adverse effects from PCE contamination from groundwater (E&E 2000). The commercial district of the City of Chehalis is located approximately 2 to 2.5 miles northwest of the Site.

OU1 and OU2 are located within the City of Chehalis' Urban Growth Area (UGA) and are zoned CG-Commercial General. The Breen Property and United Rentals Property are used for commercial purposes. A new freeway interchange was recently constructed on Labree Road; additional commercial use is anticipated. Current land use downgradient (west) of Labree Road consists primarily of rural-open (Class B Farmlands) and residential (Rural Development District [RDD]-20). A technical memorandum, Revision 4 Final Hamilton/Labree Roads Land Use Evaluation (Parametrix 2008, Updated by CDM 2011) further describes land use and is included in **Appendix C**.

Groundwater is used for drinking, cooking, bathing, irrigation, and stock watering by residences, commercial businesses, and farms across the Site. Approximately 250 private water-supply wells are located within four miles of the HRIA and the Breen Property (Farallon 2003).

Contaminated groundwater occurs in the shallow aquifer from approximately 5 feet to 50 feet bgs. The shallow aquifer is used as a drinking water source for area residences not connected to the City of Chehalis water system. As of July 2007, PCE had not been detected in any of the private wells in use at residences not currently connected to the City of Chehalis water system.

3.7 Current Ecological Conditions

Potential ecological receptors for the Site are defined as animals (e.g., birds, mammals, fish) and plants that inhabit or use, or have potential to inhabit or use, the aquatic and terrestrial habitats of the Site. Birds such as the bald eagle, the American robin, and various ducks, such as the mallard, may visit the Site. A wide range of mammals, including the short-tailed shrew, raccoon, and white-tailed deer, could also frequent the Site.

URS (2004) conducted searches of wildlife databases and inquiries to regulatory agencies regarding threatened and endangered species and environmentally important animals and plants to identify receptors that are likely to be present in the Site vicinity and in Berwick Creek. Bald eagles (*Haliaeetus leucocephalus*) were recently de-listed under the Federal Endangered Species Act (ESA). An eagle nest

has been documented approximately 1.25 miles southeast of the Site, near the Newaukum River. It is possible that bald eagles in the area obtain food from Berwick Creek.

The only species of special concern that utilizes certain reaches of Berwick Creek is the Coho salmon (*Oncorhynchus kisutch*). Berwick and Dillenbaugh Creeks are designated as essential fish habitat for the Coho and Chinook salmon (*Oncorhynchus tschawytscha*) under the Magnuson-Stevens Act. Berwick Creek was identified as having Coho salmon spawning and rearing habitat in the lower reaches, which would include areas both downstream and upstream of the HRIA.

Section 4
Nature and Extent of Contamination

This section provides information on the nature and extent of contamination by release/source areas and by media of concern based on investigations described in Section 2. The evaluation focuses mainly on the HRIA. Although the Breen Property, the Thurman Berwick Creek Area, and the downgradient areas west of Labree Road have not been fully characterized, the available information for these areas is included to provide a better understanding of Site-wide groundwater contamination, especially contamination attributable to the HRIA.

Historical sampling results and data used to assess the nature and extent of contamination across the Site are summarized in **Tables 2-2** through **2-11** and **Appendix A**. As summarized in the *Data Usability Review Technical Memorandum*, all data were determined to be of sufficient quality to support the delineation of potential contamination (Parametrix 2008). The *Data Usability Review Technical Memorandum* is provided in **Appendix C**. The locations of all sampling points are shown on **Plates 1**, **2,** and **3** in **Appendix B**. Sampling points at and adjacent to the HRIA and the Breen Property are also shown on **Figures 2-1** and **2-2**, respectively.

4.1 Contaminants of Potential Concern

Based on previous investigations, the COPCs across the Site are PCE and its degradation products TCE, cis-1, 2-DCE, and vinyl chloride, as well as the chemicals tetrahydrofuran and methylene chloride. TPHs are also considered to be a presumptive COPC until proven otherwise.

PCE has been detected more frequently and at much higher concentrations than the other COPCs, and it is the primary risk driver according to the baseline risk assessment (BRA) (Section 6). Therefore, contaminant discussions for the Site focus on PCE as the indicator or primary COPC.

4.2 Possible Source Areas

There are two areas where releases of hazardous wastes are known to have occurred at the Site: the HRIA and the Breen Property. A third apparent PCE source area at the Site is the Thurman Berwick Creek Area. There are no known PCE source areas west of Labree Road.

4.2.1 HRIA

The primary contaminant at the HRIA is the result of an apparent spill or dumping of PCE into Berwick Creek that apparently occurred just upgradient of where the Unnamed Ditch #1 enters Berwick Creek. Based on the observed extent of the plume in 1993 and a groundwater seepage velocity of 0.36 ft/day, the spill is estimated to have occurred sometime before 1990 (URS 2004, page 2-18). High concentrations in a localized area strongly point to a single release at this location, but multiple releases may have occurred along a 400-foot reach of Berwick Creek, as possibly indicated by high PCE concentrations identified in an area referred to as the "Northwestern Hot Spot", which begins approximately 80 feet downstream of Unnamed Ditch #1. The estimated volume of the release is between 100 and 700 gallons (URS 2004). Some breakdown compounds of PCE are present, including TCE and cis-1,2-DCE, but at much lower concentrations than PCE and with a much lower frequency of detection. Thus, the primary contaminant at the HRIA is PCE, and there is no evidence that PCE was mixed with any other contaminant.

4.2.2 Breen Property

The groundwater contamination at the Breen Property appears to be related to multiple releases related to operations by Breen between the early 1960s and early 1990s. In September 1999, sixty-six 55-gallon drums, four 30-gallon drums, and a number of pails and cans were removed from beneath Building B on the Breen Property. Since that time, no other sources of contamination to groundwater have been found. However, there appear to be several additional areas of contamination on the Breen Property that may be actively contributing to groundwater contamination.

4.2.3 Thurman Berwick Creek Area

The results of groundwater sampling conducted in the areas downgradient of the HRIA and south of the Breen Property indicate the presence of a potential source within or upgradient of the Thurman Berwick Creek Area (**Figure 4-2**).

4.2.4 Downgradient Areas West of Labree Road

The groundwater contamination downgradient of Labree Road is primarily related to known or potential sources at the HRIA, the Breen Property, or the Thurman Berwick Creek Area.

4.3 Soils

PCE in soils can be divided into three categories: surface, near surface and subsurface. In general, surface soils at the Site are defined as 0 to 5 feet bgs and near surface soils as 5 to 10 feet bgs. Subsurface soils are at depths greater than 10 feet and are typically below the silt cap. Subsurface soil samples from the Site have typically been collected between 10 to 50 feet bgs, the top of the aquitard. Surface/near surface and subsurface soil sampling results are summarized in **Table 2-2** and **Appendix A**, **Tables A-1** and **A-2.**

4.3.1 Surface and Near Surface Soils

Currently, the only identified surface and near surface soil source that contributes PCE to groundwater is creek bed sediment/soil in the HRIA. Only minor surface soil contamination has been identified at the Breen Property and in downgradient areas.

4.3.1.1 HRIA

PCE in surface and near surface soil was detected at the HRIA at a maximum concentration of 678 mg/kg at GP-501 at a depth of 5 feet bgs just below the base of the silt cap. This sample was collected in the area of the highest PCE concentrations in groundwater south of MW-602.

4.3.1.2 Breen Property

Few surface (0 to 5 feet bgs) and near surface (5 to 10 feet bgs) soil samples were analyzed on the Breen Property. Soil samples were sometimes collected during installation of reconnaissance borings and groundwater monitoring wells, but these were usually subsurface soil samples (greater than 10 feet bgs).

PCE contamination at the Breen Property may be primarily related to subsurface sources (i.e., buried drums at Building B and the collection pit at the wash-down area). Only one sample, SP-1, located near the wash-down pad, was collected near the surface at a depth of 2.5 feet bgs. Available surface and near surface soil data collected in the areas of Building B and the wash-down pad showed little to no PCE or other VOCs at concentrations above laboratory detection limits or practical quantitation limits (PQLs).

In general, the laboratory detection limits were below applicable MTCA Method A and B cleanup levels (Ecology 2007a). It is noteworthy that the laboratory detection limit for PCE for confirmation, SP, and test pit (TP) samples collected at Building B, and samples collected around the wash-down pad, however, were at or above Ecology's MTCA Method A cleanup level of 0.05 mg/kg for residential and industrial sites.

4.3.1.3 Thurman Berwick Creek Area

No surface or near surface soil samples collected from the Thurman Berwick Creek Area had detectable PCE concentrations.

4.3.1.4 Downgradient Areas West of Labree Road

No surface or near surface soil samples collected west of Labree Road had detectable PCE concentrations. However, the only surface or near surface soil samples were collected from borings along road right-of-ways, not from likely source areas.

4.3.2 Subsurface Soils

4.3.2.1 HRIA

The highest PCE concentrations in subsurface soil at the HRIA appear to be directly related to PCE DNAPL, based on a threshold calculation of 38 mg/kg (URS 2004). PCE concentrations high enough to indicate the presence of DNAPL have been observed in subsurface soils beneath the apparent PCE release in Berwick Creek. The highest PCE concentration in soil, 3,220 mg/kg, was detected at GP-502 at a depth of 28 feet bgs (**Figure 2-1**). In general, the highest PCE concentrations were found at MW-9, MW-602, GP-501, GP-502, GP-503, and AB-650, which are all located along the banks of Berwick Creek.

4.3.2.2 Breen Property

Minor concentrations of PCE have been detected in subsurface soils at the Breen Property. Soil contamination related to leakage from drums buried beneath Building B was removed during the remedial action to remove the drums in 2001.

Two previous investigations conducted by SAIC (1997) and Farallon (2003) examined soil contamination at depths between 10 and 50 feet. Results indicate that soil contamination was minimal. PCE concentrations at more than half of the sampling locations were non-detect. The highest PCE concentration was recorded at a depth of 43 feet bgs in RS-16 (0.16 mg/kg) located along the western property line.

4.3.2.3 Thurman Berwick Creek Area

Subsurface soil sampling data for the Thurman Berwick Creek Area are limited. PCE has been detected in soil at four locations: MW-23, MW-24, RS-30, and RS-31. The highest PCE concentration was detected in RS-31 (1.3 mg/kg) between 14 and 15.5 feet bgs.

4.3.2.4 Downgradient Areas West of Labree Road

Soil data are available for one sampling location west of Labree Road (MW-25). Soil samples were collected from this boring at three depths: 5 to 6.5 feet bgs, 10 to 11.5 feet bgs, and 39 to 40 feet bgs. PCE was only detected in the 39 to 40 feet bgs sample at a concentration of 0.13 mg/kg.

4.3.3 Extent of PCE in Soil at the HRIA

Soil isoconcentration contour maps were produced based on sampling completed at the HRIA during the EE/CA investigations (URS 2004). These maps show the concentration of PCE in soil at 5-foot intervals between 0 to 55 feet bgs. URS identifies the depths as between elevations 210 feet (surface) and 155 feet (near the silt and clay aquitard). The silt and clay aquitard was encountered from 45.5 feet bgs to 49 feet bgs in three borings and 8 wells advanced in the HRIA by URS at the depths necessary to penetrate this feature.

The isoconcentration maps show that no PCE occurs in the upper 5 feet of soil outside of Berwick Creek. In fact, PCE outside of the source area appears to be associated with saturated soils, or at shallowest, capillary zone soils. PCE as DNAPL is generally not found in soil below 35 feet bgs except in MW-9 where DNAPL was found as deep as 43 feet bgs. PCE is present in deeper soils, but concentrations generally decline with depth and do not suggest the presence of DNAPL at the silt and clay aquitard.

Copies of the soil isoconcentration maps are included in **Appendix D.**

4.3.4 Other Soil Analyses

Soil samples collected during the HRIA EE/CA investigations were analyzed for a variety of physical characteristics and metals. The results of these analyses are summarized in **Tables 2-9** and **2-10.** Soil samples collected during drum and associated contaminated soil removal at the Breen Property were also analyzed for TPH-G and total petroleum hydrocarbons quantified as diesel (TPH-D) using NWTPH-Gx and NWTPH-Dx, respectively. The purpose of these samples was to assess the completeness of contaminated soil removal during cleanup activities. Results for the soil sampling are summarized in **Appendix A**, **Table A-2**.

4.4 Groundwater

This section discusses the nature and extent of PCE in groundwater at the HRIA, the Breen Property, and other areas of the Site. PCE, TCE, and cis-1,2-DCE data are summarized in **Table 2-3**, and other groundwater analytical data are summarized in **Appendix A**, **Tables A-3** and **A-4**.

The PCE plume in the shallow aquifer appears to be stratified over much of the Site. Although, this stratification needs further characterization, it is believed to be influenced by horizontal groundwater flow and the propensity for PCE to sink. For the purposes of this RI, the upper zone of the shallow aquifer refers to the portion at or above 25 feet bgs and the lower zone is the portion below 25 feet bgs to the top of the silt and clay aquitard. The 20- to 30-foot zone appears to be a transition or mixing zone often characterized by intermediate concentrations. The deep aquifer below the aquitard has not been fully characterized. No monitoring wells have been installed within the deep aquifer. Minor amounts of PCE have been detected in samples collected from private wells screened in the deep aquifer but not enough to suggest significant migration of PCE through the aquitard. Section 4.4.5 discusses sampling results in the deep aquifer.

4.4.1 HRIA

The groundwater sampling results indicate that there are two distinct areas of groundwater contamination within the HRIA. For the purposes of this discussion, these areas are referred to as the Southeastern Hot Spot and Northwestern Hot Spot (**Figure 4-1**).

The Southeastern Hot Spot at the HRIA is located in the area of monitoring wells MW-600 through MW-604, beneath the assumed PCE release location into Berwick Creek. PCE concentrations in groundwater were detected up to 2,720,000 µg/L at MW-602 in November 2003, which is greater than the solubility limit of PCE. PCE concentrations potentially indicative of DNAPL (exceeding 10% of solubility limit or 20,000 µg/L PCE) were detected in groundwater and subsurface soils ranging from just beneath the silt layer in the bed of Berwick Creek to 32 feet bgs.

The Northwestern Hot Spot is centered on monitoring well MW-R4 where PCE concentrations of 5,300 µg/L and 8,800 µg/L were detected in groundwater samples collected in February and November 2003, respectively. Dissolved PCE in groundwater appears to have migrated northwest of the Northwestern Hot Spot based on data collected by Farallon (Farallon 2004). A groundwater sample at MW-33, located west of the Northwestern Hot Spot, contained PCE at 1,100 µg/L in April 2004.

Both the Southeastern and Northwestern Hot Spots suggest stratification of PCE in groundwater within the shallow aquifer that is characterized by higher concentrations of PCE in those monitoring wells screened in the upper zone of the shallow aquifer. Multi-level groundwater sampling was conducted in November 2002 (Farallon 2003) at monitoring wells MW-R8 and MW-R11, both of which are fully penetrating wells within the aquifer, by setting the pump at different depths. Multi-level sampling was conducted to qualitatively assess the potential stratification of the PCE plume in groundwater at the Southeastern Hot Spot and the area immediately downgradient. Results at monitoring well MW-R8 showed significantly higher PCE concentrations in the upper zone as compared to the lower zone. PCE ranged from 4,700 µg/L at 15 feet bgs to 360 µg/L at 48.5 feet bgs. Multi-level sampling in monitoring well MW-R11 did not indicate a significant variation in PCE concentrations in groundwater samples collected at varying depths between 26 and 48.5 feet bgs. However, PCE concentrations were relatively low at approximately 25 µg/L. Multi-level samples were also collected from all of the MW-600-series wells when they were installed in October/November 2003. The most dramatic stratification was

observed in MW-602, which had 2,720,000 µg/L in the 14.5-foot sample, 203,000 µg/L in the 35-foot sample, and 4,980 µg/L in the 41-foot sample.[2]

Dissolved PCE in groundwater at concentrations greater than 1,000 µg/L originating from the HRIA is typically found in the lower zone of the shallow aquifer downgradient of the United Rentals Property. However, as shown on the groundwater PCE isoconcentration map produced from 2007 data (**Figure 4-2**), dissolved PCE in groundwater at concentrations greater than 1,000 µg/L originating from the HRIA does not appear to have migrated west of the Thurman Berwick Creek Area. PCE at concentrations less than 1,000 µg/L has migrated farther downgradient and has commingled with the PCE plume originating from the Breen Property and an apparent PCE plume originating from or just upgradient of the Thurman Berwick Creek Area.

Over much of the area between United Rentals and the Breen Property wash-down pad and the Thurman Berwick Creek Area, the upper zone of the shallow aquifer is non-detect for PCE over a north-south section stretching from RS-2 to RS-24 (**Figures 4-2** and **4-6**). Further north, some shallow contamination (maximum 400 µg/L) is found in the RS-1 area on the Breen Property approximately 50 feet north of RS-2. This area of low to no PCE concentration is termed the "bottleneck" because of its shape. There may be some lithologic and/or hydraulic explanation for this, but currently there is insufficient lithologic and groundwater information in the area to provide a basis for the anomaly at this time. It may be a feature resulting from limited data in the area and thus the need to explore it with additional borings/wells is described in the Study Limitations Analysis memorandum (**Appendix C**). It is possible that with additional investigation in this area, the "bottleneck" will disappear, or shrink considerably.

4.4.2 Breen Property

In September 1999, approximately 70 drums and other containers and 600 tons of PCE and petroleum contaminated soil were removed from beneath Building B on the Breen Property. Confirmation sampling results for soil samples collected from the final excavation were either non-detect or contained contamination below MTCA Method A and/or Method B cleanup levels (GeoEngineers 2001).

Since that time, no other sources of contamination to groundwater have been identified. However, based on groundwater analytical data, several additional areas of soil contamination on the Breen Property appear to be contributing sources to groundwater contamination (EPA 2011b). The exact locations have not been identified but may include the following areas:

- Area surrounding the wash-down pad
- Area between Building B and Building C, including:
  - The area upgradient of monitoring well MW-27, and
  - Torpedo Tube area
- Area surrounding Building B

[2] Stratification within the shallow aquifer needs further characterization due to limited information available regarding the protocols followed for the multi-level sampling effort. Thus, inconsistencies with pump installation, sample interval sequencing, and low-flow pumping rates may be present and reduce certainty of these results.

Wash-Down Pad and Surrounding Area

The wash-down pad, located near the southwest corner of the Breen Property, has been the subject of several investigations (GeoEngineers 2001; Farallon 2003). Based on historical accounts, waste from steam cleaning conducted at the wash-down pad was collected in an approximately 5-foot deep pit located adjacent to the pad. The exact location of this pit is unknown.

Historically, groundwater samples collected from the upper zone of the shallow aquifer at SG2-15, MW-34, and RS-7, located immediately upgradient of the wash-down pad, contained PCE concentrations of 1,500 µg/L, 1,700 µg/L, and 2,400 µg/L respectively. Groundwater samples collected from MW-29, located 100 feet upgradient of the wash-down pad, had much lower PCE concentrations in November and September 2003. Upper zone well MW-29 contained PCE at concentrations ranging from 19 to 140 µg/L. The relatively higher concentrations of PCE in the upper zone of the shallow aquifer adjacent to the wash-down pad, compared to PCE concentrations further upgradient of the wash-down pad, indicate a suspected source of PCE to groundwater at or immediately upgradient of the wash-down pad area.

Between Building B and Building C

Area Upgradient of MW-27: Groundwater samples collected in the area between Building C and the Torpedo Tube (**Figure 2-2**) indicate a potential source of PCE. In July 2002, the maximum PCE concentration detected in the lower zone of the shallow aquifer in boring RS-11 was 880 µg/L, and the maximum concentration in the lower zone in boring RS-16, located 100 feet downgradient of RS-11, was 620 µg/L. September and November 2003 results showed PCE concentrations in lower zone well MW-27, located immediately north of the northeast corner of Building C and upgradient of RS-16, ranging from 1,300 µg/L to 1,500 µg/L. In contrast, the maximum PCE concentration detected in the lower zone in RS-1, located upgradient and approximately 400 feet east of MW-27, was 260 µg/L at a depth of 30 feet bgs, followed by 84 µg/L at a depth of 46 feet bgs. Since that time, no sampling has been completed immediately upgradient of MW-27 or in the area between MW-27 and RS-1.

PCE was also detected in the upper zone in borings RS-1 (400 µg/L) and RS-11 (310 µg/L), suggesting a possible upper zone source near RS-1 that may account for some of the contamination in this area. In addition, a 1969 aerial photograph of the Breen Property shows a possible trench containing debris or drums roughly 100 feet east and upgradient of MW-27. The area containing this trench does not appear to have been part of a 1996 GeoRecon geophysical investigation or the 2000 GeoPotential investigation conducted at the Site.

A metal cover was observed in the area of MW-27 in July 2007. What this object covers is unknown and will require further evaluation to determine if it could be associated with a potential source of groundwater contamination.

Torpedo Tube Area: A geophysical investigation conducted by GeoPotential in 2000 covered several areas of the Breen Property, including the area southwest of the Livestock Shed, Building B, and the wash-down pad area. Several geophysical anomalies were identified during this investigation, including the Torpedo Tube (GeoPotential 2000) (see Section 2.6 for further discussion of the Torpedo Tube). The original reports that outline the entire geophysical survey areas appear to be lost. **Figure 2-2**, which indicates geophysical survey areas, appears to be the areas where anomalies were identified.

In 2002, Farallon completed a boring (RS-9) adjacent to the Torpedo Tube, and PCE in groundwater was detected at 250 µg/L in the lower zone, but was non-detect in the upper zone (Farallon 2003). A sample

collected in 2002 in RS-5, approximately 100 feet upgradient of the Torpedo Tube, contained PCE at 77 µg/L in the lower zone. Groundwater samples collected from the lower zone in boring RS-15A, located west and downgradient of the Torpedo Tube near the Breen Property boundary, contained PCE at concentrations of 1,100 µg/L at 32 feet bgs and 1,300 µg/L at 43 feet bgs. Groundwater samples collected from lower zone well MW-19, located near RS-15A, contained PCE at concentrations of 1,600 µg/L in 2002 (maximum concentration detected), 1,400 µg/L in February and November 2003, and 1,400 µg/L in July 2007. These concentrations are significantly higher than those detected at boring RS-16, located 100 feet south and cross-gradient of MW-19. PCE at RS-16 ranged from 420 µg/L to 620 µg/L in the lower zone samples collected in 2002. These results indicate a potential PCE source between Building C and the Torpedo Tube. The PCE source for this groundwater contamination has not been identified and no sampling has been completed immediately downgradient of the Torpedo Tube to determine whether it is a potential source for the PCE detected at RS-15A and MW-19.

Building B

As stated earlier, a cleanup was conducted in 1999 under Building B to remove drums identified by a ground-penetrating radar survey (GeoEngineers 2001). Groundwater sampling conducted in July 2002 in areas downgradient of Building B at RS-8, RS-13, and RS-14 contained PCE and its degradation products, including cis-1,2-DCE. Similarly, cis-1,2-DCE was detected in samples collected from monitoring well pair MW-17/MW-18, located directly downgradient of Building B in 2002 and 2003. PCE was detected in shallow zone well MW-17 at a maximum of 2.4 µg/L; however, the maximum cis-1,2-DCE concentration was 510 µg/L. PCE was detected in deep zone well MW-18 at a maximum of 88.6 µg/L, with a maximum cis-1,2-DCE concentration of 9.4 µg/L. Both of these wells were installed in 2002, so changes in groundwater contaminant levels as a result of remedial efforts cannot be assessed. The PCE concentrations are similar to those in upper and lower zone groundwater samples from temporary well points SP-5 through SP-8 collected in 1999.

November 2007 air sampling conducted in and under Building B found PCE. This may suggest a source of contamination to groundwater under or around Building B. The highest concentration of PCE was detected at 120 micrograms per cubic meter (µg/m^3) in a subslab sample collected in the main bay of Building B. The next highest concentration of 70 µg/m^3 of PCE was detected in a subslab sample collected in the office of Building B.

Other Areas

Other potential sources may exist at the Breen Property, including a possible area upgradient of RS-6 (~700 µg/L PCE), located approximately 140 feet east of Building C. Several other areas had PCE concentrations in groundwater exceeding 200 µg/L, including an area west of the Livestock Shed. Soil and groundwater investigations were conducted in this area of geophysical anomalies (shown as geophysical survey areas GA-1 and GA-2 on **Figure 2-2**) by Farallon (2003); no source for this contamination was identified.

In 2007, PCE was detected in MW-21 at 1,500 µg/L and in MW-30 at 1,300 µg/L. Both locations are situated near the southern property line of the Breen Property. MW-21 is located in the southwest corner of the property and MW-30 is located east of the wash-down pad. Both of these wells are screened in the lower zone of the shallow aquifer. The concentrations are comparable to 2003 results. Up to about 1,000 µg/L of the PCE in MW-30 is likely from the HRIA. The source for the additional contamination at MW-30 is not known, but could include a potential release to Berwick Creek immediately upgradient of this well.

4.4.3 Thurman Berwick Creek Area

Groundwater sampling results in the areas downgradient of the HRIA and south of the Breen Property suggest the presence of a potential source within or upgradient of the Thurman Berwick Creek Area (**Figure 4-2**).

PCE concentrations up to 3,740 µg/L have been detected in groundwater samples collected from private well PW-9, located adjacent to the Thurman residence. There is no log for this well so the screened interval is unknown. However, PCE has been detected in upper zone monitoring wells in this area at concentrations up to 2,700 µg/L and in lower zone monitoring wells up to 2,000 µg/L. No source for the high concentrations of PCE in groundwater in the Thurman Berwick Creek Area wells has been identified. None of the PCE in the upper zone and concentrations less than 1,000 µg/L in the lower zone can be attributed to the HRIA source. A possible source for the contamination includes a potential release to Berwick Creek where it turns south from the Breen Property. A release would have migrated through the creek bed and to the shallow aquifer. Alternatively, PCE disposal may have occurred in the area between the MW-22/23/24 well line and Berwick Creek (**Figure 4-2**).

PCE isoconcentration contour maps based on groundwater data for the Site show that the 1,000 µg/L contour from the HRIA in the lower zone of the shallow aquifer bifurcates into a northern and a southern lobe (**Figure 4-7**). The southern lobe does not appear to extend to the Thurman Berwick Creek Area, and little or no shallow contamination (less than 25 feet deep) from the HRIA extends to wells MW-22 or RS-19. This would indicate a potential local PCE source upgradient of PW-9, at or upgradient of Berwick Creek as indicated by high concentrations in upper zone wells MW-31 (2,300 µg/L) and MW-32 (2,700 µg/L), as well as in borings RS-31 (1,700 µg/L at 18 feet) and RS-33 (1,400 µg/L at 18.5 feet). These concentrations may be associated with a PCE release to Berwick Creek south of the Breen Property or migration of PCE contamination from another source within the Site. The PCE source for this groundwater contamination has not been identified.

4.4.4 Downgradient Areas West of Labree Road

Only a few sampling points exist in the shallow aquifer immediately downgradient of Labree Road, and both are 200 to 300 feet downgradient of PW-9 in the Thurman Berwick Creek Area. PCE has been detected in private well PW-7 at concentrations ranging from 140 to 980 µg/L. No well log exists and the depth of this well is unknown. It is unclear what aquifer zone these concentrations represent. In boring B-11, located 70 feet west of PW-7, PCE was detected at 1,730 µg/L in the upper zone and 970 µg/L in the lower zone of the shallow aquifer.

Private well PW-21, located on Rice Road, was non-detect for PCE (<1 µg/L) in 1999 and had a detection of 4.6 µg/L of PCE in 2001. The PCE concentration has subsequently been close to or slightly above 5 µg/L. Because PW-21 is located on the southern edge of the plume, it may record the arrival of contamination from the HRIA that had previously been pulled south by the former production wells (see Section 3.3) located south of the HRIA and the Thurman Berwick Creek Area. Alternately, it may be associated with another potential source located upgradient of PW-21.

Three transects of borings and two monitoring wells have been installed in the general downgradient direction from the Breen and Thurman Berwick Creek Properties (**Plates 1** through **3 in Appendix B**). The first two transects were installed neither perpendicular nor parallel to the plume. The third transect was installed roughly perpendicular to the plume. The second transect sampled only the lower zone of

the shallow aquifer, whereas both the upper and lower zones of the shallow aquifer were sampled in the first and third transects.

PCE in the first transect was highest in the upper zone in RS-48 (about 1,200 feet downgradient of the wash-down pad area) at 630 µg/L. In contrast, the highest concentration in the lower zone was 910 µg/L in RS-49, about 500 feet south of RS-48 and about 900 feet downgradient of the Thurman Berwick Creek Area.

Along the second downgradient transect, PCE concentrations in lower zone well MW-25 (2,200 feet northwest of the nearest contaminated well along Labree Road) ranged from 600 µg/L to 760 µg/L. The maximum concentration in boring RS-20 (500 feet farther downgradient and to the north) was 890 µg/L, suggesting that MW-25 was not installed along the centerline of the plume (**Figure 4-3**).

Along the third and most downgradient transect, PCE concentrations in MW-28 (another 3,800 feet in the general downgradient direction from RS-20, and screened across portions of both the upper and lower zones) has been non-detect at the laboratory reporting limit (<0.2 µg/L) except for one detection of 0.35 µg/L. PCE concentrations in groundwater samples collected at multiple depths in nearby borings RS-41, RS-42, and RS-43 were all non-detect at the laboratory reporting limit (<0.2 µg/L). The plume may not yet have reached these sampling points, or the plume may turn more northerly, perhaps discharging to Dillenbaugh Creek somewhere between RS-20 and MW-28.

4.4.5 Extent of Groundwater PCE Contamination

Vertical Extent in the Shallow Aquifer

Cross-sections, which included the vertical extent and concentrations of PCE in groundwater, were prepared for the HRIA (URS 2004) and are included in **Appendix D**. These cross-sections indicate that the PCE DNAPL at the HRIA may have migrated vertically through the aquifer 30 to 35 feet, but has not reached the silt and clay aquitard beneath the shallow aquifer.

Cross-sections prepared by Farallon cover portions of the Breen Property and the Thurman Berwick Creek Area (**Appendix D**).

A conceptual cross-section down the centerline of the plume from the HRIA through the southwestern portion of the Breen Property and Thurman Berwick Creek Area to RS-20 shows how and where contamination from the different PCE sources migrates and mixes in the shallow aquifer (**Figure 4-4**). A conceptual cross-section transecting the plume at the low PCE concentration area between the HRIA and the Thurman Berwick Creek Area is shown on **Figure 4-5**. These conceptual cross-sections interpolate data where data are plentiful; however, in the downgradient areas, little data are available so apparent concentration trends are extrapolated conservatively.

Horizontal Extent in the Shallow Aquifer

Isoconcentration contour maps were prepared to illustrate the horizontal extent of the PCE plume in the vicinity of the HRIA and across the Site. Groundwater sampling data collected in November 2003 during the Phase II RI/FS sampling (Farallon 2004), the HRIA EE/CA investigation (URS 2004), and the July 2007 sampling conducted by Parametrix were used. Data included primarily groundwater analytical results from monitoring wells, but additional data from discrete sampling points were used to fill data gaps in areas without monitoring wells.

Figure 4-2 shows the PCE isoconcentration contours for the HRIA in July 2007. The 1,000 µg/L PCE contour from the HRIA bifurcates into a northern and a southern lobe. The northern 1,000 µg/L PCE lobe appears to originate in the HRIA's Northwestern Hot Spot where the upper zone of the shallow aquifer shows higher PCE concentrations relative to the lower zone. This lobe extends under North Hamilton Road along the southern boundary of the Breen Property and barely reaches the southwest corner of the Breen Property and the northernmost portion of the Thurman Berwick Creek Area (based on the 1,200 µg/L detection in the deepest sample from boring RS-46). The southern 1,000 µg/L lobe appears to originate in the HRIA's Southeastern Hot Spot where the upper zone of the shallow aquifer shows higher PCE concentrations relative to the lower zone. This lobe almost extends to the Thurman Berwick Creek Area.

Figure 4-3 shows the regional (Site-wide) PCE isoconcentration contours in July 2007. After crossing under Labree Road, the plume turns in a north-northwesterly direction, essentially following Berwick and Dillenbaugh Creeks. Currently, this turn to a north-northwesterly direction is only supported by two well sampling/gradient points (MW-25 and MW-28). However, the north-northwest gradient of the local topography and surface water flow in shallow creeks discharging to the Chehalis River further supports this direction of groundwater flow and subsequent plume migration.

Figure 4-6 shows the maximum concentrations detected at sampling points in the upper zone of the shallow aquifer. A lobe of the PCE plume in the upper zone (with concentrations less than 500 µg/L) may extend from the northern end of the HRIA to the southwestern corner of the Breen Property. Or, since this northern PCE upper zone lobe runs somewhat north of and parallel to the HRIA 1,000 µg/L PCE northern lower zone isoconcentration contour, it may have a separate source on the Breen Property.

Figure 4-7 shows the maximum concentrations detected at sampling points in the lower zone of the shallow aquifer. The pattern is similar to **Figure 4-2**, confirming that most of the contamination downgradient of the HRIA occurs in the lower zone of the aquifer.

There is some indication that the plume from the HRIA has continued to advance. Groundwater concentrations in both lower zone 1,000 µg/L PCE plume lobes downgradient of the HRIA (but upgradient of the Thurman Berwick Creek Area and the southwest corner of the Breen Property) generally increased between 2003 and 2007. The lower zone PCE concentration in MW-4 showed an increase from 700 µg/L to 900 µg/L between November 2003 and July 2007. MW-23 showed an increase in lower zone PCE concentration from 680 µg/L to 870 µg/L (**Figure 4-7** and **Plate 1**). These increases in PCE indicate advancement of the higher concentration plume lobes from the HRIA and that the HRIA source is not in dynamic equilibrium with the groundwater.

Although the HRIA source area continues to generate a high concentration PCE plume, there are apparent constraints on how much contamination reaches the areas downgradient of the HRIA source areas. A north-south zone east of where North Hamilton Road crosses Berwick Creek, between RS-2 and RS-24, appears to act as a vertical PCE "bottleneck," preventing significant transport of PCE in the upper zone of the shallow aquifer from the HRIA to the Breen Property and the Thurman Berwick Creek Area. Some shallow contamination (maximum 400 µg/L PCE) is found in the RS-1 area on the Breen Property approximately 50 feet north of RS-2. It is unknown if the source is local (on the Breen Property) or whether it is from the HRIA, perhaps the Northwestern Hot Spot. Gradient directions may be different in the upper and lower zones of the shallow aquifer to account for this variation in contaminant migration. In addition, a vertical gradient may also be prevalent between the upper and lower zones, which drives contaminants to the lower zone. Additional depth-discrete gradient data is

needed to confirm transport in the upper and lower zones of the shallow aquifer between the HRIA and the Breen Property and Thurman Berwick Creek Area.

The upper zone of the shallow aquifer within the "bottleneck" area has very little PCE contamination (**Figures 4-2**, **4-4** and **4-6**) suggesting that very little of the PCE contamination in the upper zone of the shallow aquifer west of this north-south section (including the Breen Property wash-down pad and the Thurman Berwick Creek Areas) could have come from the HRIA. PCE concentrations in the lower zone of the shallow aquifer in the Thurman Berwick Creek Area reflect mixing between upgradient Berwick Creek sources and a limited amount of lower zone groundwater contamination from the HRIA. The contribution from the HRIA would generally appear to be limited to approximately 1,000 µg/L in the lower zone of the shallow aquifer in the Thurman Berwick Creek Area, as indicated by the PCE isoconcentrations maps (**Figures 4-2** and **4-7**) and as shown by the conceptual plume centerline figure (**Figure 4-4)**. Regardless of the age of the HRIA source, these apparent constraints on PCE migration in groundwater to the Breen Property and Thurman Berwick Creek Area suggest that the proportion of contamination from the HRIA that has continued to migrate downgradient from Labree Road is perhaps 25 to 30 percent, and almost entirely in the lower zone of the shallow aquifer (**Figure 4-3**). However, a full mass flux/discharge evaluation would need to be conducted within the upper and lower zones of the shallow aquifer to determine the contribution from the HRIA to the Thurman Berwick Creek Area and Breen Property.

The source areas at the Breen Property and the Thurman Berwick Creek Area appear older and less concentrated than the HRIA source. However, PCE increases at these locations, especially in the upper zone, and to some extent in the lower zone, exceed the concentrations of PCE in the plume attributable to the HRIA as it reaches these new sources (**Figures 4-6** and **4-7**). Thus, the majority of the downgradient groundwater plume west of Labree Road most likely originated from sources at the Breen Property and the Thurman Berwick Creek Area. However, as noted early, a mass flux/discharge evaluation would need to be conducted for the HRIA, Breen Property, and Thurman Berwick Creek Area to determine the actual contributions from each source area to the plume.

Although the full extent of the Site-wide plume is not currently known, it has migrated a minimum of 3,000 feet downgradient from the Breen Property west of Labree Road. Based on groundwater flow calculations, the shallow aquifer plume emanating from the HRIA may have migrated only about 1,500 to 2,000 feet, or to roughly 500 feet west of Labree Road, assuming that the HRIA disposal did not occur much before 1990. PW-3, located approximately 400 feet from the Southeastern Hot Spot, was found to be contaminated in 1993. Using the EE/CA groundwater seepage velocity of 0.36 foot/day and not considering contaminant retardation, the release in Berwick Creek likely happened at least 3 years prior to sampling in 1993. The latest possible release time is, therefore, 1990. If retardation is considered, the actual release time could be earlier (URS 2004 page 2-18).

Deep Aquifer

The deep aquifer has never been specifically characterized and no monitoring wells have been installed. A few private wells are completed in the deep aquifer across the Site (**Figure 1-3** and **Table 3-5**). Minor amounts of PCE have been detected in some deep aquifer wells, but not enough to suggest significant migration of PCE through the silt and clay aquitard. The fact that PCE has been detected in the deep aquifer may indicate minor PCE migration from the shallow aquifer has occurred along well casings, but not all of the detections have been from wells located within the shallow aquifer plume. For example, in 2002, PCE was detected at 0.73 µg/L in private well PW-23, 500 feet south of the HRIA and outside the

shallow aquifer plume. However, PCE was not detected in PW-23 during sampling events conducted in 2001 and 2003.

PCE was detected at 0.39 µg/L in a 2002 sample collected from private well PW-1 located near the middle of the Breen Property. However, the associated field duplicate was below the laboratory detection limit for PCE, and PCE was not detected in five other sampling events between 1993 and 2003. PCE has never been detected in any of five rounds of sampling at PW-8 located almost 200 feet west of the Breen Property. PW-1 and PW-8 are the only deep aquifer wells located in areas of significant shallow aquifer contamination.

PCE has been detected in two samples collected from private well PW-6, located about 1,000 feet south of the Thurman Berwick Creek Area near the intersection of Labree Road and Rice Road, near the southern margin of the shallow aquifer plume. In 1999, PCE was detected at an estimated 0.24 µg/L. However, the associated field duplicate was below the laboratory detection limit for PCE. In 2001, PCE was detected at 2 µg/L. Review of the laboratory report for this sample showed that the sample identification was changed by the analytical laboratory from PW-4 to PW-6 (PW-4 is approximately 400 feet northeast of PW-6). A review of the E&E database showed the same analytical data reported for both PW-4 and PW-6, suggesting that the sample designations may have been confused. During subsequent sampling events, PCE was not detected in PW-6 groundwater samples.

There is limited data available from the deep aquifer in areas of significant shallow aquifer contamination to conclude that the deep aquifer has not been impacted. Further, the data from the only two wells screened within the deep aquifer in areas of significant PCE contamination were last collected in 2003. No recent data has been collected from the deep aquifer to determine if PCE has migrated below the aquitard.

4.4.6 Other Groundwater Analyses

Additional analyses have been conducted on a limited number of groundwater samples at the Site.

Three groundwater samples were analyzed for gasoline-range or diesel-range petroleum hydrocarbons using NWTPH-Gx and NWTPH-Dx. TPH-G was analyzed in groundwater samples from borings GP-1 and GP-3 during the START investigation in 2000. GP-1 was located in the HRIA Southeastern Hot Spot and GP-3 was located south of the United Rentals facility. A TPH-G concentration of 4,200 µg/L was detected at 16 feet bgs at GP-1 and non-detect at a MRL of 100 µg/L at GP-3. TPH-D was analyzed in a sample collected from PW-21, also during the START investigations in 2000. TPH-D was non-detect at an MRL of 16 µg/L. TPH analyses for the three groundwater samples are summarized in **Appendix A**, **Table A-4**.

Samples collected from private wells PW-5 and PW-21 were analyzed for SVOCs using EPA Method 8270 during the Ecology investigations in 1999. In addition, pesticides analysis was conducted on a sample collected from PW-5. No SVOCs or pesticides were detected above laboratory detection limits. However, these wells are at the peripheral limits of the plume and are not relevant for determining whether groundwater at the Site has been impacted by SVOCs or pesticides.

Conventional chemistry analyses were conducted on samples collected from a number of wells within the HRIA during the EE/CA investigations (URS 2004). The results of these analyses are shown in **Table 2-11**. Field parameters were collected during the July 2007 sampling event and are shown in **Table 2-12**.

No analyses have been conducted for metals in groundwater at the Site. Select metals and inorganics were analyzed in samples collected from private wells downgradient of the Site. The following metals were detected in all samples: copper, iron, manganese, magnesium, potassium, sodium, and zinc.

4.5 Surface Water

Surface water samples were collected from Berwick Creek in 1998 by Ecology, in 2002 and 2003 by Farallon, and from Dillenbaugh Creek in 2007 by Parametrix. Berwick Creek samples were collected from a total of 10 stations, four established by Ecology in 1998 (SW-1 through SW-4), and six established by Farallon in 2002 (SW-5 through SW-10). Samples were analyzed for VOCs; the results are summarized in **Table 2-4** and **Appendix A**, **Table A-5**.

4.5.1 HRIA

Four of the 10 surface water sampling stations are in the HRIA (SW-3, SW-5 through SW-7) and are shown on **Figure 2-3**. The remaining stations are located downstream of the HRIA.

PCE concentrations in surface water in known areas of contamination in the HRIA ranged from non-detect at an MRL of 0.2 µg/L to 40 µg/L (SW-5 unnamed ditch # 1) in November 2002. The detections of PCE in surface water samples at the three locations have varied considerably, and no clear seasonal trend has been identified. However, the highest concentrations of PCE at SW-7 and SW-5 were detected in November 2002 (12 and 40 µg/L, respectively), typically a high precipitation month.

Two additional stations are located upstream of the HRIA. SW-4, located in the upstream portion of unnamed ditch #1 east of I-5, was sampled once by Ecology in December 1998; PCE was not detected. SW-6, located near the upstream limit of known contamination in Berwick Creek soils, was sampled four times between July 2002 and February 2003. PCE was detected at concentrations less than 1 µg/L in July 2002, but was not detected above the laboratory detection limit (<0.2 µg/L) during later sampling events.

No surface water sampling has been completed in Berwick Creek in the northern portion of the HRIA between MW-R4 and MW-5/MW-33. High PCE concentrations have been detected in MW-R3 (Northwestern Hot Spot) and MW-33. It is unknown if contaminated groundwater near these wells discharges to surface water.

4.5.2 Breen Property

One surface water sampling point is located in Berwick Creek adjacent to the Breen Property. SW-8 is located just downstream of the western boundary of the HRIA. PCE was detected at low conentrations of 0.6 µg/L and 0.67 µg/L in two sampling events and was not detected in two other sampling events.

4.5.3 Thurman Berwick Creek Area

Surface water samples have been collected at three sampling points in Berwick Creek at the Thurman Berwick Creek Area. SW-1 is located at the downstream end of the culvert passing under Labree Road. SW-2 is located at the upstream end of the culvert passing under North Hamilton Road. SW-9 is located just upstream of SW-1.

SW-1 and SW-2 were sampled by Ecology in 1998 and PCE concentrations ranged from 8.5 to 16 µg/L, similar to concentrations measured within the HRIA. Farallon sampled SW-9 in 2002 and 2003. PCE

concentrations ranged from non-detect at the laboratory reporting limit (<0.2) to 1 µg/L. The source of PCE detected in surface water samples may be residual contamination in the creek bed sediment/soil.

4.5.4 Downgradient Areas West of Labree Road

SW-10 is located 1,300 feet downstream of Labree Road. PCE was detected in three of four sampling events, but all concentrations were less than 1.0 µg/L.

Two surface water samples (CS-1 and CS-2) were collected in July 2007 from Dillenbaugh Creek near monitoring well MW-25 and downgradient of the confluence with Berwick Creek (**Figure 2-4**). CS-1 and CS-2 contained PCE at 1.7 and 3.6 µg/L, respectively. These concentrations are higher than PCE detected at SW-10 in Berwick Creek downgradient of Labree Road, indicating the PCE groundwater plume may be discharging to Dillenbaugh Creek.

4.5.5 Other Surface Water Analyses

Six surface water samples collected by Farallon were analyzed for gasoline-range petroleum hydrocarbons. Samples SW-5 through SW-10 were non-detect for TPH-G at an MRL of 100 µg/L. Petroleum hydrocarbon data for the six surface water samples are summarized in **Appendix A**, **Table A-6**.

4.6 Creek Bed Sediment/Soil

This section describes the creek bed sediment/soil sampling conducted at the Site. Creek bed sampling has historically only been conducted at the HRIA and the Breen Property. No sampling has been conducted in the downgradient areas. Sampling results are presented in **Table 2-5**.

4.6.1 HRIA

During the HRIA EE/CA investigations, 39 shallow soil samples were collected from the bed and bank soil along Berwick Creek and both unnamed ditches in the HRIA (URS 2004). The maximum PCE concentration detected was 5,220 mg/kg in creek bed sample SB-409 (**Figure 2-3**). The lateral distribution of PCE in the creek bed and bank appears to be discontinuous. PCE was not detected in several of the creek bed and bank samples collected around SB-409, where the maximum concentration of PCE was detected.

The Northwestern Hot Spot probably represents the maximum downstream extent of PCE DNAPL movement along the bed of Berwick Creek from the HRIA release location. Creek bed samples downstream from the Northwestern Hot Spot showed only low PCE concentrations (URS 2004).

The approximate extent of PCE contamination in the Berwick Creek bed at the HRIA is shown in the additional isoconcentration maps prepared by URS (2004) included in **Appendix D**, **Figures 2-3** and **2-4**. The creek bed is located at an elevation of approximately 199 to 200 feet MSL.

No creek bed sediment/soil samples have been collected from Berwick Creek in the northern portion of the HRIA, particularly in the segment between MW-R4 and MW-5/MW-33. It is unknown if there is a separate potential creek source for the contamination detected in MW-33 or if other creek sources may exist.

4.6.2 Breen Property

Creek channel samples CC-1 through CC-9 were collected by Farallon in September 2003 during Phase II RI/FS sampling (**Figure 2-3**). The samples were collected from various locations along Berwick Creek south of the Breen Property from the creek bed sediment at approximately 1 foot bgs. No PCE was detected above laboratory detection limits in any of the samples; however, these samples may reflect sediments deposited after PCE disposal.

4.6.3 Other Areas

No creek bed sediment/soil samples have been collected in the Thurman Berwick Creek Area or the downgradient areas west of Labree Road. No source for the PCE in groundwater detected in the Thurman Berwick Creek Area wells has been identified. A possible source for the contamination includes a potential release to Berwick Creek south of the Breen Property. Conceivably, PCE DNAPL flowed down Berwick Creek from the HRIA release and settled into this reach, but the lack of evidence of DNAPL in the intervening creek bed deposits makes this scenario highly speculative. Deeper sediment/soil samples in Berwick Creek between the North Hamilton Road Bridge and Labree Road are needed.

4.7 Soil Gas

This section summarizes the results of soil gas investigations conducted at the HRIA and the Breen Property. The results of the soil gas sampling are shown in **Table 2-6** and locations are shown on **Figures 2-1** and **2-2**.

4.7.1 HRIA

A soil gas survey was conducted within the HRIA north of Berwick Creek to assess a possible spill from I-5. During the survey, soil gas samples were collected at 35 locations and analyzed for PCE using a mobile laboratory (**Figure 2-1**). In general, PCE concentrations in the soil gas samples collected along I-5 were very low (i.e., less than 1 ppm-v). Two samples, SG-208 and SG-209, contained PCE at 1.8 and 3.2 ppm-v, respectively. Other nearby samples, however, did not reveal a definable release location. Overall, the soil gas survey results do not support the scenario of a release from I-5.

4.7.2 Breen Property

Soil gas surveys were performed in two areas of the Breen property in November 2002 to qualitatively assess the potential PCE source associated with elevated PCE concentrations detected in corresponding groundwater samples. Soil gas samples were collected in the area of boring RS-1, in the central part of the Breen Property, at locations SG1-1 through SG1-10, SG1-12 through SG1-14, and SG1-20. Samples were also collected in the wash-down pad area near boring RS-7 at locations SG2-1 through SG2-6, SG2-8, SG2-9, and SG2-15 (**Figure 2-2**). All samples were collected at 5 feet bgs and were analyzed for PCE and TCE using EPA Method 8021B. Soil gas sample results were reported as non-detect at the laboratory practical quantitation limit (PQL), indicating that these areas were not likely PCE source areas (Farallon 2003).

4.7.3 Other Areas

No soil gas sampling has been conducted in the Thurman Berwick Creek Area or the downgradient areas west of Labree Road.

4.8 Vapor Intrusion Sampling

In November 2007, EPA's ERT conducted air sampling in and around private residences and commercial buildings across the Site. The resulting data were used to assess whether vapor caused from volatilization of contaminants from the shallow aquifer was intruding into indoor and ambient air at the Site. Soil vapor samples were also collected beneath concrete building slabs to assess if vapors were concentrated beneath the structure that either were related to indoor air impacts, if present, or could potentially affect indoor air if the concrete slab was breached.

Analytical results for the air samples are shown in **Table 2-8**. Discussion of air sampling results and associated risks are discussed in the Baseline Risk Assessment Report included as **Appendix G**.

4.8.1 HRIA

Vapor intrusion sampling was conducted in and around the United Rentals Property within the HRIA. Four samples were collected from the United Rentals facility area: two indoor air, one ambient air, and one sub-slab soil vapor. Sampling locations are described in **Table 2-7.**

PCE was detected in all indoor air, ambient air, and sub-slab samples collected at the United Rentals Property. The highest concentration of PCE (25 µg/m^3) was detected in the sub-slab sample.

4.8.2 Breen Property

Air sampling was conducted at several buildings on the Breen Property. Indoor air and sub-slab samples were collected at Buildings B and C and the Chehalis Livestock Auction Building. In addition, ambient air samples were collected from various locations near these buildings. A total of 12 samples were collected, including five indoor air, four sub-slab soil vapor, and three ambient air (**Tables 2-7** and **2-8**).

PCE was detected in all indoor air, ambient air, and sub-slab samples collected at the Breen Property. The highest concentrations of PCE were detected in the sub-slab samples collected from the main bay (120 µg/m^3) and office (70 µg/m^3) of Building B (Bulldog Trailer Company). Building B was the location of subsurface drum removal activities in 1999.

The estimated risks from the volatilization of contaminants in groundwater to indoor air on the Breen Property, based on the air sampling results, are below risk threshold levels. The evaluation of the limited vapor intrusion data available suggests that this pathway is minor on the Breen Property. However, vapor intrusion cannot be ruled out definitively, and several significant uncertainties lower confidence in the risk evaluation.

- All data collected are relatively old and may not reflect current conditions; thus, the evaluation may not be relevant for 2011.
- Air data were collected only once over a two day period. Air data may vary significantly over time and by season, and it is not possible to determine how available data reflect air concentrations over time. Possible exposure concentrations could be significantly under- or over-estimated.
- Outdoor air data suggest that this medium may be a major source to indoor air. A large contribution from outdoor air could make a smaller contribution from the subsurface. It was difficult to determine how shallow groundwater data reflect VOC concentrations at the top of the

water table. Such data best characterize the source of VOCs in soil gas, and would be best for estimating ratios between indoor air and groundwater. Ratios could be either under- or over-estimated.

Overall, the evaluation of vapor intrusion is limited, and confidence in conclusions of the assessment is low. Additional data would be necessary to provide a more useful evaluation of this pathway.

4.8.3 Thurman Berwick Creek Area

Five samples were collected at and adjacent to the Thurman residence, including two indoor air, two crawlspace air, and one ambient air (**Tables 2-7** and **2-8**). The highest concentration of PCE (0.23 $\mu g/m^3$) was detected in an ambient air sample collected adjacent to Berwick Creek (Ambient 002/Unit 004). A potential source for groundwater contamination identified at the Thurman Property may be located in Berwick Creek upgradient of the property and may be impacting ambient air.

4.8.4 Downgradient Areas West of Labree Road

Vapor intrusion sampling was conducted in five residences located on Labree Road and on Rice Road, west of Labree Road. In addition, one commercial location (Giske Imaging) located on Rice Road was sampled. Thirteen samples were collected, including five indoor air, five crawlspace air, two ambient air, and one sub-slab soil vapor (**Tables 2-7** and **2-8**). The highest concentration of PCE was detected in the crawlspace sample (0.81 $\mu g/m^3$) collected from the residence at 2364 Rice Road.

Section 5
Contaminant Fate and Transport

This section describes the fate and transport of PCE in groundwater across the Site, including a discussion on release mechanisms from primary and secondary source areas, potential routes of contaminant migration, contaminant persistence and degradation, and concentration trends analysis. The results and limitations of groundwater modeling conducted for the Site are provided.

5.1 Source Areas, Release Mechanisms and Potential Routes of Migration

The following sections describe the primary and secondary source areas and release mechanisms, and the potential routes of contaminant migration to the various media across the Site. A graphical depiction of the CSM is included as **Figure 5-1**.

5.1.1 HRIA

As described previously, the apparent primary source of contamination at the HRIA is a spill or dumping of liquid PCE into Berwick Creek in the vicinity of monitoring well MW-602 (Southeastern Hot Spot, **Figure 4-1**). Berwick Creek within the HRIA is an intermittent and relatively low-velocity stream. The two rounds of stream flow data collected to date have shown a maximum flow rate of only 6 cubic feet per minute in the reach of the stream that passes through the source area. The amount and rate at which PCE dissolves and is carried downstream will vary with the stream flow rate at the time of the spill. In times of creek flow, a release of sufficient quantity would have resulted in some of the PCE sinking through the creek water column and settling on the creek sediment as DNAPL since the density of PCE is greater than water. When there is no flow, the dumped PCE would pool on the creek bed surface and seep into the ground until there is sufficient stream flow to dissolve some of the PCE and carry it downstream.

Once pooled on top of the creek bed sediment, the PCE leached into the sediment and continued to migrate downward until it reached the shallow groundwater aquifer. PCE tends to be highly mobile in the subsurface environment with transport rate and extent vertically and laterally dependent on site physical features (e.g., stratigraphy, hydraulic conductivity, and porosity) and hydraulics (i.e., groundwater flow direction and magnitude). In the absence of transport via hydraulic advection/dispersion, transport may still occur through an aquitard by diffusion, i.e., migration in response to a concentration gradient in the absence of groundwater flow. The DNAPL resting on the floor of the creek bed acts as a continuing source of PCE leaching into the subsurface soils.

Upon reaching the aquifer, some of the PCE dissolved in the groundwater and began moving laterally with the shallow aquifer. The DNAPL in the aquifer would continue to gradually dissolve, providing a long-term source of PCE contamination in groundwater. It would also diffuse into the lower-permeability lenses within the shallow aquifer and subsequent back-diffusion provides a weaker, but longer-term source of PCE to groundwater. Concentrations in the groundwater are high enough to suspect that the release to the creek was of sufficient quantity to have also resulted in DNAPL conditions within the shallow groundwater aquifer (based on groundwater detections exceeding 10% of the solubility limit or 20,000 µg/L PCE). The DNAPL portion of the plume would appear to be centered on the area of MW-602, based on the high concentration of 2,720,000 µg//L observed in November 2003.

Dense and very dense soils and zones of higher silt content appear to have impeded vertical migration of PCE DNAPL beneath the release zone. As a consequence, the PCE DNAPL apparently spread laterally through preferential pathways, with concentrations indicative of DNAPL found upgradient of the creek as far as location AB-650, approximately 80 feet southeast of MW-602. Vertical movement of PCE DNAPL may have been impeded by zones such as the very dense, fine-grained sand found at 30 feet bgs beneath the creek in several borings (Plate 4 in **Appendix D**). However, PCE as DNAPL did penetrate this zone, but is generally not found below about 35 feet bgs. The exception is MW-9, about 40 feet northwest of MW-602, where PCE concentrations in soil samples imply DNAPL presence as deep as 43 feet. A soil concentration greater than 38 mg/kg indicates DNAPL as calculated by URS in the EE/CA Report (URS 2004).

PCE concentrations in groundwater indicative of DNAPL are generally not found below 35 feet bgs (URS 2004). Thus, DNAPL does not appear to have reached the silt and clay aquitard at the bottom of the shallow aquifer (Plate 4 in **Appendix D**).

The Northwestern Hot Spot within the HRIA appears to be the result of PCE DNAPL movement in Berwick Creek downstream of the primary release location, in relatively small quantities compared to the southeastern release location. The Northwestern Hot Spot probably represents the maximum downstream extent of PCE DNAPL movement along the bed of Berwick Creek from the HRIA release location. Samples from the soil beneath the creek found only intermittent evidence of this downstream movement, indicating that the volume of PCE DNAPL was nearly exhausted. Sufficient DNAPL was present, however, to result in significant sorbed and dissolved concentrations of PCE in the area of the Northwestern Hot Spot (URS 2004).

Significant levels of contamination from the HRIA are limited to the lower zone of the shallow aquifer downgradient of United Rentals. Over much of the area between United Rentals, the Breen Property wash-down pad, and the Thurman Berwick Creek Area, the upper zone of the shallow aquifer is non-detect for PCE over a north-south section stretching from RS-2 to RS-24. In this vertical “bottleneck”, contamination is mostly restricted to the lower zone. Some shallow contamination (maximum 400 µg/L) is found in the RS-1 area on the Breen Property north of RS-46. It is unknown if the source is local (on the Breen Property) or whether it is from the HRIA, perhaps the Northwestern Hot Spot.

There could be multiple reasons that account for this pattern of contaminant migration. Lateral and vertical hydraulic gradients may be different in the upper and lower zones of the shallow aquifer. In addition, seasonal changes in gradient should also be evaluated. Because PCE is denser than water and much of the dissolved PCE may have originated from DNAPL in the aquifer, the contaminant plume

will tend to move downward. Additional characterization is needed to determine the cause of the rapid decline in concentrations, particularly in the upper zone downgradient of the HRIA.

Based on groundwater flow calculations, the shallow aquifer plume emanating from the HRIA may have migrated about 1,500 to 2,000 feet, or to roughly 500 feet west of Labree Road, assuming that the HRIA disposal did not occur much before 1990 (URS 2004 page 2-18). However, other data suggest an older HRIA source. Private drinking water well PW-21, located along Rice Road, was non-detect (<1 µg/L) in 1999 and had a detection of 4.6 µg/L in 2001. The PCE concentration has subsequently fluctuated slightly above and below 5 µg/L. Since this well is on the southwestern edge of the plume, it may record the arrival of contamination from the HRIA that had previously been pulled south by former production wells located south of the HRIA and the Thurman Berwick Creek area, or it may be associated with another potential source located upgradient of PW-21. Additional evaluation is necessary to assess whether the PCE detected in PW-21 is from the HRIA. If it is, then the assumption that HRIA disposal occurred shortly before 1990 is not supported. It would instead suggest that disposal occurred sometime in the 1970s. If this is the case, then the HRIA contribution to contamination in the lower portion of the plume downgradient of Labree Road may extend considerably further downgradient than estimated above. However, the proportion attributable to the HRIA would be limited to the transport from the "bottleneck" area ─ less than half of the PCE mass found in the lower zone of the aquifer (below 25 feet) and none of the PCE in the upper zone. As noted earlier, a mass flux/discharge evaluation would need to be conducted to verify the contaminant contribution from the HRIA, through the "bottleneck," to downgradient areas.

5.1.2 Breen Property

The groundwater contamination at the Breen Property appears to be related to multiple releases related to site operations between the early 1960s and early 1990s, combined with some PCE from the HRIA source areas, particularly in the deep zone of the shallow aquifer along and north of North Hamilton Road.

Although containers of source product and contaminated soil were removed below Building B in 1999, no reduction in groundwater PCE concentrations has been observed in nearby monitoring wells, compared to groundwater samples collected directly from borings at the time of the removal. This could suggest a continuing, as yet undiscovered, source of contamination to groundwater in the vicinity of Building B; however, neither the borings nor the monitoring wells may have been placed optimally to measure changes in PCE levels.

Other potential sources appear to exist on the Breen Property; the wash-down pad in particular is an area with significant (greater than 1,000 µg/L) concentrations of PCE in the shallow zone, indicating a source of contamination. However, further investigation is necessary to determine the exact location and nature of potential sources.

Similar to the HRIA, releases of PCE or PCE-contaminated water to the soil or to Berwick Creek from the Breen Property would have migrated vertically through the soil and the lower-permeability silt cap to the shallow groundwater aquifer. The depth of groundwater contamination at the Breen Property and at the Thurman Berwick Creek Area, suggests that PCE is, or possibly has been, present as DNAPL at some sources. However, to date, no areas with concentrations high enough to suggest the presence of DNAPL have been identified. Remaining continuing sources to groundwater likely include dispersed residual DNAPL, PCE adsorbed to soils, and PCE diffused into lower-permeability soil layers. PCE in

groundwater at the Breen Property appears to be migrating in the shallow aquifer in the dissolved phase. However, the Breen Property has not been fully characterized to determine if potential DNAPL sources are present on the property. This information is necessary to fully assess the behavior of PCE at the Breen Property.

5.1.3 Thurman Berwick Creek Area

As with the Breen Property, PCE in groundwater appears to be migrating in the shallow aquifer in the dissolved phase in the Thurman Berwick Area. Upper zone groundwater PCE concentrations may be related to an additional PCE release to Berwick Creek south of the Breen Property or migration of PCE contamination from another PCE source within the Site between Berwick Creek and monitoring wells MW-22/MW-23 and sampling locations RS-19/RS-19A. PCE in the lower zone likely includes a contribution (less than 1,000 µg/L) that has migrated from the HRIA. Additional characterization is necessary to determine if a potential source (possibly a DNAPL source) is present immediately upgradient of the Thurman Property, and, if it is from disposal into Berwick Creek, how far downstream it extends.

5.1.4 Downgradient Areas West of Labree Road

Data are limited immediately west of Labree Road, but farther downgradient, the core of the plume (greater than 500 µg/L) is apparently relatively narrow and long and does not appear to attenuate much over a 3,000-foot distance based on analytical data. This pattern suggests that much of the downgradient plume is from an older, discrete PCE point source that may have been stable for an extended period. Alternatively, additional sources may be present downgradient, perhaps in Berwick Creek near where it crosses the plume centerline.

5.1.5 Secondary Release Mechanisms

When a released contaminant is retained in an environmental medium such as soil or sediment, the medium functions as a secondary source for further release of the contaminants. The following paragraphs discuss the release mechanisms from the secondary media sources.

Sediment Migration in Berwick Creek

Contaminated sediment in Berwick Creek has the potential to migrate downstream under the influence of the stream current. The timing and magnitude of migration depends upon surface water flow conditions that change seasonally due to precipitation. Area-wide flood events in recent years appear to have scoured certain portions of Berwick Creek, including the channel within the HRIA, down to the silt cap, so that the original contaminated sediment is no longer present.

Leaching from Contaminated Berwick Creek Sediment to Surface Water

Contaminated sediment that migrates downstream is in constant contact with surface water, creating the potential for leaching of PCE to surface water at points downstream from the original release to Berwick Creek.

Volatilization from Surface Water to Air

PCE dissolved in Berwick Creek water would be subject to volatilization from the water into the ambient air. The magnitude of this volatilization would depend upon the concentrations in the stream, turbulence, and ambient weather conditions.

Volatilization from Soil to Air

PCE in soil may volatilize to ambient air, depending upon the concentration, distance between the contamination and the surface of the soil, and weather conditions. This may be a particular concern for excavations into contaminated soils.

Leaching to Groundwater

Precipitation infiltrating through soil contaminated with PCE may result in migration of PCE to groundwater. Groundwater occurs at relatively shallow depths in the HRIA, and the rate and magnitude of migration depends on the nature of the soils above the water table and the amount of seasonal precipitation.

Volatilization from Groundwater through Soil to Air

Volatilization of PCE in groundwater has the potential to migrate to the soil and ultimately to ambient air and, potentially, indoor air. Such releases would be dependent upon the concentration in groundwater, the depth of groundwater below the land surface, presence and thickness, or absence of a low-permeability layer above the groundwater table, and weather conditions. In addition, although impacted private water wells are purported to no longer be in use, particularly as a drinking water source, continued use of these wells for secondary uses such as irrigation, showering, toilets, or wash water, may result in exposures through volatilization and subsequent inhalation.

Downgradient Discharge from Groundwater to Surface Water

Hydrogeologic data collected in the HRIA indicate that the reach of Berwick Creek that flows through the HRIA is underlain by fine-grained silt and clay, which separates the stream from groundwater. If this layer is absent, fractured, or breached by Berwick Creek, Dillenbaugh Creek, or the Newaukum River downstream of the HRIA, PCE-contaminated groundwater can discharge to surface water. Sampling results indicate that contaminated groundwater is likely discharging to the creeks.

Further discussion of the CSM as it relates to potential risk to human health and the environment is discussed in Section 6, Baseline Risk Assessment.

5.2 Contaminant Persistence

The process of reducing mass, toxicity, mobility, volume and/or concentrations of contaminants from soil or groundwater without human intervention is referred to as natural attenuation (EPA 1997a). These in situ processes include dispersion, dilution, sorption, volatilization, and chemical or biological stabilization, transformation, or destruction of contaminants (EPA 1997a). The methods, degree of transformation that occurs, and timing of natural attenuation depend upon a multitude of factors, including the contaminant type, magnitude of the release, and site-specific subsurface conditions.

Many of the physical processes of natural attenuation (i.e., dispersion, volatilization, dilution) rely more on mass transfer, rather than destruction. These processes are the secondary release mechanisms that were discussed in Section 5.1.5. Under appropriate conditions PCE biodegrades, whether partially or fully. The biodegradation processes of PCE and an evaluation of biodegradation of PCE at the Site is described in the following sections.

5.2.1 Biodegradation Processes of PCE

The primary degradation pathway for PCE is microbially-mediated reductive dehalogenation, whereby its chlorine atoms are successively stripped off to form less chlorinated compounds. PCE is successively degraded to TCE, DCE, vinyl chloride, ethene, and finally carbon dioxide as shown on **Figure 5-2**. DCE occurs as three isomers: 1,1-DCE, cis-1,2-DCE, and trans-1,2-DCE. The cis-1,2-DCE isomer is by far the most prevalent product of the degradation of PCE and TCE. The biodegradation pathways for PCE's daughter products can vary and include electron donor reactions (anaerobic oxidation and aerobic oxidation), electron acceptor reactions (reductive dehalogenation), and aerobic cometabolism (oxidation) as shown on **Figure 5-2**.

5.2.2 Assessment of In Situ Biodegradation

The assessment of in situ biodegradation of PCE is typically demonstrated through assessment of multiple lines of evidence. The most obvious evidence of PCE biodegradation is the presence of its daughter products. The daughter products of PCE were not always analyzed in Site samples, but when they were analyzed they were rarely detected, and when they were detected the concentrations were relatively low. One exception is an area west of Building B on the Breen property, which is discussed later in this section.

To evaluate whether conditions are conducive for biodegradation and to further demonstrate that biodegradation is occurring requires analysis of a variety of additional parameters in groundwater, such as: dissolved oxygen (DO), nitrate, ferrous iron, sulfate, sulfide, methane, ethene, oxidation reduction potential (ORP), total organic carbon, and chloride. In 2004, a suite of conventional chemistry analyses was completed on groundwater samples collected from wells MW-600 through MW-608 within the HRIA (**Table 2-11**). MW-600 through MW-604 are located within the Southeastern Hot Spot. MW-605 is located just downgradient of the hot spot. MW-606 through MW-608 are located down or cross gradient of the hot spot. **Table 2-12** presents field measured parameters of DO, ORP, temperature, pH, conductivity, and turbidity for 10 Site-wide monitoring wells in July 2007.

PCE Daughter Products: One area on the Breen Property shows significant concentrations of the PCE daughter products. Downgradient of Building B, groundwater from the upper zone of the shallow aquifer at three locations (MW-17 (19.7-23 feet), B-14 (20 feet), and SP-8 (15 feet)), and one location on the upgradient side (SP-6 (15 feet)), contained virtually no PCE or TCE, but instead contained significant concentrations of cis-1,2-DCE and vinyl chloride. More specifically, in B-14, PCE and TCE were non-detect at the laboratory reporting limit (<1.0 µg/L), while cis-1,2-DCE and vinyl chloride concentrations were 610 µg/L and 68 µg/L, respectively. Concentrations of PCE and TCE in MW-17 were less than 4 µg/L, but cis-1,2-DCE concentrations ranged between 230 µg/L and 510 µg/L and vinyl chloride concentrations ranged between 230 µg/L and 480 µg/L. In SP-7, PCE and TCE were non-detect and cis-1,2-DCE and vinyl chloride were 101 µg/L and 449 µg/L, respectively. In SP-8, PCE and TCE were non-detect and cis-1,2-DCE and vinyl chloride were 700 µg/L and 857 µg/L, respectively.

In addition, it is noted that at MW-R3, located in the Northwestern Hot Spot area, cis-1,2-DCE was low to non-detect from 1999 until 2002. In August 2002, cis-1,2- DCE concentrations began to increase, while PCE concentrations generally declined. The changes coincided with notation of sample collection depths from the upper zone of the shallow aquifer. Previously, the depth interval was not noted, so it is likely that the earlier samples were collected from the lower zone and that no change has

occurred in the groundwater chemistry related to the degradation of PCE. These results indicate that PCE in the upper zone is being at least partially degraded (vinyl chloride concentrations were all low to non-detect).

Dissolved Oxygen: Reductive dechlorination is not expected to occur if DO is above about 0.5 mg/L. DO concentrations in the HRIA monitoring wells ranged between 0.69 and 4.06 mg/L. DO concentrations in the Site-wide wells ranged between 3.21 and 5.87 mg/L. The only sample with DO less than 1 mg/L was collected from MW-600. DO data should be used in a qualitative manner since accurate DO measurements are difficult to obtain, especially when measuring below 1.0 mg/L. DO concentrations at the Site are generally too high to be conducive for reductive dechlorination processes.

Oxidation Reduction Potential: ORP is a measure of the electrochemical potential associated with the transfer of electrons from one substance to another. ORP is a qualitative measurement because measurements assume the system is at equilibrium and several factors affect the accuracy of the measurements. ORP values of -100 millivolts (mV) or less are favorable for reductive dechlorination. ORP measurements in the HRIA wells ranged between 140 and -63 mV. In the Site-wide wells, ORP ranged between 351 and 413 mV. Values between about 50 mV and -100 mV are not within the optimal range for reductive dechlorination, but they are low enough for it to occur. Only five samples were below 50 mV; all were HRIA wells.

Ferrous Iron: When ferric iron (FeIII) is used as an electron acceptor during anaerobic biodegradation of organic carbon, it is reduced to ferrous iron (FeII) (Weidemeier 1998). Thus, the presence of ferrous iron in groundwater indicates reducing conditions. Ferrous iron was not detected in any of the groundwater samples analyzed.

Sulfate: The role of sulfur in the bioremediation of chlorinated solvents is complex and multifaceted, as it can be both problematic and advantageous. Sulfate must be reduced in order to reach methanogenic conditions where reductive dechlorination proceeds most readily, but there is ample evidence in the literature for dechlorination of a wide variety of chlorinated solvents under sulfate reducing conditions (ARCADIS G&M, Inc. 2002). Sulfur and sulfur-containing compounds can aid in the biological degradation of chlorinated solvents through a variety of mechanisms, including stimulation of dehalogenation by sulfate reducers, abiotic degradation of chlorinated solvents by iron sulfide, and involvement as reductants and/or intermediates in the degradation mechanisms of chlorinated solvents (ARCADIS G&M, Inc. 2002). However, elevated levels of sulfide [as a result of sulfate reduction] may be toxic to dechlorinating microorganisms (ARCADIS G&M, Inc. 2002). Weidemeier (1998) states that "Concentrations of sulfate greater than about 20 mg/L may cause competitive exclusion of dechlorination." Sulfate concentrations in the HRIA groundwater samples ranged between 1 and 34 mg/L. Sulfide was not detected in any of the groundwater samples (<2 mg/L).

Nitrate: Nitrate concentrations ranged between 0.5 and 1.7 mg/L. Concentrations greater than 1 mg/L may compete with the reductive dechlorination pathway. Nitrate concentrations at the Site do not appear to be high enough to compete with the reductive declorination pathway.

Alkalinity: In general, a positive correlation between zones of microbial activity and increased alkalinity is expected because the carbon dioxide produced by biological activity increases alkalinity in typical groundwater pH ranges. Alkalinity ranged between 72 and 150 mg/L. Except for MW-602, alkalinity concentrations in and just downgradient of the Southeastern Hot Spot area were over 100 mg/L. Alkalinity concentrations in monitoring wells downgradient of the hot spot were slightly lower.

While the difference is not really significant, the increased alkalinity concentrations may indicate slight increased biological activity in the source area.

Chloride: Chloride concentrations greater than two times background can be indicative of biodegradation. Chloride concentrations ranged between 1 and 1.3 mg/L in the four wells downgradient of the Southeastern Hot Spot, while chloride concentrations in wells located within the Southeastern Hot Spot were significantly higher, ranging between 5.4 and 9 mg/L.

5.2.2.1 Conclusions

Available analytical data suggest that biodegradation of PCE throughout the Site is very minimal with the exception of a small area in the shallow zone of the upper aquifer west (downgradient) of Building B on the Breen property. Minimal groundwater data are available to evaluate why PCE degradation is occurring downgradient of Building B as only ORP and DO data were collected for MW-17. DO concentrations ranged between 0.39 to 1.0 mg/L, lower than nearly all other locations where DO data are available. ORP ranged from 65 to 170 mV which do not appear favorable for reductive dechlorination.

Field monitoring data indicates that conditions throughout the Site are not generally conducive for biodegradation of PCE. DO and total organic carbon concentrations are likely the most limiting factors for biodegradation processes. Additional studies would need to be completed to determine the dynamics in the one area of the Breen property where conditions are conducive for biodegradation of PCE.

5.3 Contaminant Fate: Concentration Trend Analysis

An evaluation of concentration trends in groundwater and surface water data was completed at various well locations and surface water sampling points. Wells and surface water sampling points were selected based on the location and number of data points available. Sampling locations with fewer than three data points were not evaluated. Statistical analysis was not conducted, so the evaluation was semi-qualitative in nature. Moreover, several wells have long screens through aquifer zones of varying concentration, so apparent trends may reflect variability in the depth at which the sampling pump was set. Concentration trend plots are presented in **Appendix F**.

5.3.1 Monitoring Wells

5.3.1.1 HRIA

In general, most monitoring wells within and immediately downgradient of the HRIA showed an increase in PCE concentrations in groundwater between 1999 and 2003. MW-R1, MW-R2, MW-R4, MW-R5, MW-R7, and MW-R10 all show generally increasing PCE concentrations. These wells are all located downgradient of the release area, and all, except MW-R10, are screened in the upper zone of the shallow aquifer. MW-R1, MW-R2, and MW-R5 are located closest to the HRIA and show the highest increase in concentration.

Decreasing PCE concentrations were observed in upper zone wells MW-R6 and MW-R9 (screened across both zones) between 1999/2000 and 2002, but they showed an increase in 2003. Both of these wells are located downgradient of the HRIA. PCE concentrations in upper zone well MW-R3, located northwest of the release area, fluctuate with no apparent increasing or decreasing trend.

Decreasing concentrations are apparent in lower zone well MW-9, located adjacent to the HRIA, and at MW-R11 (screened across both zones), located southeast of the United Rental building. Between August 2000 and November 2003, MW-9 has shown a decrease of almost 35,000 µg/L of PCE.

5.3.1.2 Breen Property

PCE concentrations in monitoring wells on the Breen Property are fluctuating, relatively constant, or slightly increased. PCE concentrations in lower zone monitoring well MW-6 fluctuate, but the overall change in concentration is relatively small. PCE concentrations in lower zone well MW-8, located downgradient of the wash-down pad, fluctuated between approximately 1,400 µg/L and 2,100 µg/L between 1997 and 2003, but no overall increasing or decreasing trend is apparent.

Slightly increasing trends in PCE concentrations are indicated in lower zone wells MW-2 and MW-21 and upper zone well MW-20. However, there is insufficient data for MW-20 and MW-21 to evaluate a trend. MW-20 and MW-21 are a well cluster located downgradient of the wash-down pad near the west property boundary (**Figure 2-2**). MW-2 is located in an area between Building C and the Torpedo Tube.

PCE concentrations in lower zone well MW-19, located downgradient of the Torpedo Tube area, were relatively constant at about 1,400 µg/L between 2002 and 2007. The most significant concentration difference occurred in two samples taken less than two weeks apart in August 2002 (1,400 µg/L versus 1,600 µg/L), which likely indicates a variation between samples (i.e., sampling, analytical variation), rather than over time.

Lower zone well MW-18, located west and downgradient of Building B, showed a steady increase in PCE concentrations from 54 µg/L to 89 ug/L between 2002 and 2003.

5.3.1.3 Thurman Berwick Creek Area

MW-23 and MW-24 are lower zone wells located upgradient of the Thurman Berwick Creek area, south of the Breen Property, and between United Rentals and the Thurman Berwick Creek Area. PCE data for the three sampling events in 2002 and the first part of 2003 were relatively consistent, after which PCE concentrations increased. MW-4, located south of the Thurman Berwick Creek Area and generally downgradient of MW-24, showed an overall increasing trend in PCE concentrations, but quite a bit of variation between individual sampling events. The concentration of PCE in MW-4 showed a sharp increase in 2001 (900 µg/L), followed by a steady decrease (down to 460 µg/L in February 2003), then an increase between November 2003 and July 2007 (up to 920 µg/L), similar to MW-23 and MW-24. The recent increases may be related to the migration of the southern and northern lower zone lobes of the PCE plume from the HRIA.

Within the Thurman Berwick Creek Area proper there are only two monitoring wells: lower zone well MW-31 and upper zone well MW-32, both located on either side of Berwick Creek just south of North Hamilton Road. MW-31 was sampled only twice within a period of few months in 2003, so no trend can be established. Between 2003 and 2007, the well was buried under a mound of dirt and could not be sampled. MW-32, sampled only three times between 2003 and 2007, showed an increase in PCE between 2003 and July 2007 (from approximately 2,000 µg/L to 2,700 µg/L). Since the upper zone well MW-22, located upgradient of MW-32, showed a maximum concentration of 38 µg/L of PCE (February 23, 2003), the increase in MW-32 does not appear to be attributed to an advance of the HRIA plume.

5.3.1.4 Downgradient Areas West of Labree Road

There is only one monitoring well located within the PCE plume downgradient of Labree Road: lower zone monitoring well MW-25. This well is located 2,400 feet west of Labree Road. PCE concentrations at MW-25 appeared to be relatively stable between 2002 and 2007.

5.3.2 Private Wells

Groundwater data collected from private wells between 1993 and 2007 reflect different trends, but many wells outside source areas indicate recent overall decreasing concentrations. The downward concentration trend in a number of the private wells may be associated with decreased well pumping following installation of the new City of Chehalis water supply line in 2002 and shut down of dairy wells. PW-2, located north of the Smith Tractor building (**Figure 4-1**), was replaced by a new well completed in the deeper aquifer. PW-4, located at a dairy farm south of the Breen Property along Labree Road, and PW-5, located to the southeast of PW-4, were also shut down. Based on conversations with Michael Meyers of URS (URS 2005), PW-4 was used as a production well for the dairy farm and may have been in part responsible for pulling the PCE groundwater plume to the south.

Private wells PW-4, PW-5, and PW-7 show substantial variation between sampling events until about 2002. In late 1998, a sharp decline in PCE was observed in all three wells, then in 2002 PCE showed a more consistent decline. PCE concentrations in PW-2 were fairly consistent from 1993 until 1998, when the level declined by about 25 percent.

PW-3, located on the United Rentals Property within the HRIA (**Figure 2-1**), showed generally increasing PCE concentrations between 1993 and January 2001, with an abrupt increase between August 2000 and January 2001 (from 350 µg/L to 930 µg/L). PCE concentrations declined to 560 µg/L in November 2002.

PW-9 showed substantial fluctuations in PCE concentrations between 1994 and 2003 from 460 µg/L to 3,740 µg/L. This well is located in the Thurman Berwick Creek Area within an area of elevated PCE concentrations in groundwater.

PW-21 is located along the southern edge of the plume about 1,800 feet west of Labree Road. Since PCE contamination was first observed at this well in 2001, it has shown a steady trend close to or slightly above 5 µg/L. Because PW-21 is located on the southern edge of the plume, it may record the arrival of contamination from the HRIA that was pulled south by former production wells located south of the HRIA and the Thurman Berwick Creek Area. Alternately, it may be associated with another potential source upgradient of PW-21.

5.3.3 Surface Water Monitoring Stations

PCE concentrations in samples collected from Berwick Creek monitoring stations (SW-5 through SW-10) were generally low with occasional peaks, but there is insufficient data to indicate whether PCE concentrations are fluctuating. The largest peaks occur mostly during the winter months. This type of trend is anticipated because of seasonal changes in flow rate in the creek and the potential for releases of PCE from creek bed sediment during periods of high flow and creek bed scouring.

5.3.4 Trend Conclusions

The following general PCE concentration trends were observed during data analysis.

In general, monitoring wells located downgradient of the HRIA continue to show an increase in concentration of PCE over time (e.g., MW-R1, MW-R2, MW-R4, MW-R5, MW-R7 and MW-R10). Wells located at the upgradient edge of the HRIA release area (i.e., MW-9) or cross-gradient (i.e., MW-R11) have shown decreasing concentrations with time. However, the PCE concentration decrease observed at MW-R11 may be related to shutdown of nearby shallow private wells and not related to a declining PCE source at the HRIA.

The concentrations in most of the lower zone wells upgradient of the Thurman Berwick Creek Area showed an increase during the last few sampling rounds, most likely in response to increasing contributions from the advancing PCE plume from the HRIA.

Overall, PCE concentrations on the Breen Property fluctuate with little apparent declining or increasing trends.

A downward concentration trend has occurred in a number of the private wells located outside of source areas that may be associated with decreased well pumping following installation of the new City of Chehalis water supply line in 2002 and shut down of dairy wells.

5.4 Modeling of Contaminant Fate and Transport

Several modeling efforts have been completed for the Site to assess contaminant fate and transport in groundwater. These efforts are summarized in the following sections.

5.4.1 History of Modeling Efforts

Four modeling efforts have been performed at the Site, three for the HRIA and its plume, and one for the Breen Property source and plume. None of the models adequately reproduces the observed plume(s) or explains apparent plume behavior. As such, none of the models based on existing Site data are capable of making useful predictions regarding either current or eventual plume length, contaminant distribution within the plume(s), or plume longevity. However, the numerical modeling results provide some insights into the hydrologic system at the Site, including likely interactions between the plume and the two creeks running through the Site.

5.4.1.1 Analytical Modeling

During completion of the HRIA EE/CA, the future fate and transport of PCE at the HRIA was evaluated using EPA's screening tool Biochlor, Version 2.2. This model was used to estimate the maximum eventual extent of the PCE plume downgradient of the HRIA in the absence of source control and to estimate the general effects of implementing source control.

The HRIA Biochlor analysis showed the following results:

One or more sources located downgradient of the HRIA are contributing to the Site-wide plume. The HRIA alone cannot account for the downgradient distribution of PCE.

With biodegradation assumed, the eventual maximum plume length resulting from a constant source at Berwick Creek is unlikely to exceed 3 miles; without biodegradation, the maximum plume length cannot be estimated and concentrations beyond 3 miles will eventually exceed 30 µg/L. However, sampling and analysis conducted during the EE/CA investigations, and as discussed above, show that biodegradation is likely not a major attenuation process at the Site.

With the constant source (DNAPL) removed and dissolved concentrations reduced by 85 percent in the HRIA, the eventual maximum plume length attributable to the source is unlikely to exceed 2 miles even with no biodegradation.

With dissolved concentrations at the HRIA reduced by 85 percent, the plume is predicted to eventually attenuate to an average concentration below MCLs, although attenuation in the release areas and within the groundwater plume would require hundreds of years because of back diffusion from finer-grained layers and lenses.

Modeling using Biochlor was completed by Farallon (2004, unpublished) during completion of Phase II RI/FS activities. The Biochlor analysis was conducted for sources at the HRIA, the Thurman Berwick Creek Area, and the Breen Property. It concluded that PCE concentrations would not migrate greater than 3,500 feet from the Breen Property, with or without biodegradation occurring. Thus, it would most likely be reduced through natural attenuation processes to concentrations below MCLs prior to reaching additional downgradient drinking water sources.

The same modeling results made a similar prediction for the PCE concentration at PW-9 at the Thurman Berwick Creek Area under that same scenario.

5.4.1.2 Three-Dimensional Numerical Modeling

Three-dimensional groundwater modeling was completed using MODFLOW-96 and MT3DMS (CDM 2007). The modeling was completed to assess the existing Site-wide groundwater contaminant plume and the potential future impacts related to plume migration. The groundwater modeling task had the following objectives:

- Develop a steady-state numerical model of the hydrogeologic system at the Site.
- Build a solute transport model into the numerical model to describe the fate and transport of dissolved PCE within the aquifer.
- Assess the behavior of the PCE in groundwater assuming a “no action” remedial alternative and assuming source removal or hydraulic containment at the HRIA.

The results of the groundwater modeling effort showed the following:

- Appreciable amounts of hydrogeologic and transport data are available from locations near the Site properties. However, at distances from the properties, especially west of Labree Road where approximately 75% of the PCE plume exists (as estimated from the modeled area of the plume), available data are limited.
- No, or negligible biodegradation is occurring since minimal concentrations of PCE daughter products are detected in wells with exceedingly high concentrations of PCE.
- If the HRIA source is removed and dissolved concentrations are reduced by 85 percent, the eventual maximum plume length in the shallow aquifer is unlikely to reach active drinking water sources and will eventually be remediated through natural attenuation, including physical advection of dissolved PCE in groundwater, chemical dispersion, and simultaneous dilution.

- For the purposes of groundwater modeling, biodegradation was not considered to be a natural attenuation process at the Site. Incorporating dilution and dispersion properties, the numerical model predicted that most of the modeled (HRIA) plume would naturally attenuate through dilution and dispersion within 30 years. Under a Source Removal Alternative, the model predicted PCE concentrations at the release area would decrease to below 5 µg/L within 5 years.
- Modeling results showed that only a minor amount of the PCE concentrations detected in groundwater at MW-25 (located about 2,400 feet downgradient of Labree Road, the Breen Property, and Thurman Berwick Creek Area source areas) were associated with the HRIA source area. This emphasized a need for additional investigations and further delineation of the Breen and Thurman Berwick Creek Area source areas.
- The model estimated that groundwater flow discharges to Dillenbaugh Creek downgradient from the Site properties near the current mapped limit (based on field data) of the plume.
- Under the No Action Alternative, the groundwater plume was estimated to expand slightly at the lateral extents and migrate to Dillenbaugh Creek near the plume's leading edge.
- Under the Source Removal Alternative, PCE concentrations in groundwater are expected to drop below 5 µg/L in the treatment area within 5 years after the source is removed and treatment area concentrations are reduced by 85%.

5.4.1.3 Geostatistical Modeling

Three-dimensional geostatistical modeling was completed by CDM using Environmental Visualization Software (EVS) [CDM 2009]. This modeling was used, in part, to help identify possible areas of the site where available groundwater data was insufficient to adequately characterize the area. To assist in assessing site-wide data gaps, uncertainty plots were created using EVS and presented in the Study Limitations Technical Memorandum (**Appendix C**).

This modeling pointed to the following areas with the greatest degree of uncertainty:

- The area west of the Thurman Berwick Creek area, east of PW-21, and south of RS-49
- The downgradient area west and northwest of the Breen Property and Thurman Berwick Creek area, including the area around and downgradient of MW-25

5.4.2 Modeling Limitations

The Biochlor and numerical modeling efforts used important inputs that are not fully representative of actual Site conditions. For instance, in the case of the Biochlor models, the groundwater gradient used was double the observed Site gradient over most of the plume and the model did not account for vertical gradients or seasonal shifts in gradients. The three-dimensional numerical model used a hydraulic conductivity at least an order of magnitude higher than has been generally observed in order to conservatively evaluate contaminant plume migration. Additionally, none of the models were able to reproduce the observed downgradient plume, either in the length or the width of the >500 µg/L plume core west of Labree Road. The HRIA models were unable to reproduce or explain the relatively low-concentration zone between the United Rentals Property and the Thurman Berwick Creek/Breen wash-down pad areas. Consequently, they both overpredict concentrations from the HRIA downgradient of

that zone by about an order of magnitude. As for the Breen Biochlor model, not enough is known about the original source, particularly its strength over time, to input a defensible source term. Since the HRIA source cannot account for a large proportion of the contamination extending downgradient from Labree Road, the Breen Property and/or Thurman Berwick Creek Area sources must account for more of the downgradient plume than the Farallon Biochlor model estimates.

The three-dimensional numerical modeling, besides ignoring the Breen Property and Thurman Berwick Creek Area sources, advanced (and attenuated) the groundwater contamination too quickly, consequently providing an overly optimistic prediction of downgradient plume attenuation associated with removing the HRIA source. Moreover, contaminant diffusion and back diffusion from aquifer materials immediately downgradient of the HRIA source were ignored, resulting in an overly optimistic prediction of plume attenuation near the head of the HRIA plume following source removal or containment. However, the water-balance portion of the model provides insight into how the plume may interact with Berwick and Dillenbaugh Creeks within the model domain. It predicted groundwater discharge to Dillenbaugh Creek in the reach just below the confluence with Berwick Creek. Surface water sampling in that reach in 2007 showed concentrations of PCE that indicate likely discharge of the northeastern edge of the plume in that area.

When evaluating EVS modeling output, the user should consider data limitations and other factors that increase the uncertainty associated with that output. This uncertainty may contribute to under- or overestimation of mass, area, and/or volumes. For example, if data are sparse and/or clustered, the EVS model may expand contamination to areas where there is a lack of bounding data and significantly overestimate mass. In contrast, the EVS model has limited ability to consider groundwater flow paths, which means it will not extrapolate or connect portions of a plume. This can result in an underestimation of mass. Further, the model's limited ability to consider flow gradients means that it may inappropriately assign mass in upgradient and cross gradient directions leading to an overestimation of actual contaminant mass.

In addition, the user should also consider uncertainty associated with the analytical data used in the various models due to data quality issues or limits associated with the analytical methods themselves. There may be soil data quality issues stemming from soil sampling/preserving methodologies because EPA Method 3035 was not used during soil sampling. As a result, there may have been a significant loss of volatiles from the soil samples, especially the deeper gravely soils, thus biasing soil analytical results and resulting PCE mass estimates low. Alternately, high detection limits for nondetect results potentially lead to a high bias, e.g., the EVS model assigns a value of one half the detection limit to represent nondetect results. Initial runs of the EVS model showed contamination extending under and east of I-5 because of high detection limits associated with samples collected from locations east of I-5. These results were subsequently removed from consideration. In summary, data and information derived from the modeling effort should be considered in conjunction with known Site conditions to minimize the impact of uncertainty attributed to model and data limitations.

Section 6
Baseline Risk Assessment Summary

The Baseline Risk Assessment Report (BRA) for the Site is included as **Appendix G.** A summary of the baseline risk assessment results is included below. The BRA was conducted in accordance with federal and regional Superfund technical guidance for human health (EPA 1989, 1991a, 1991b, 1992, 1996, 1998a, and 2004 in **Appendix G**) and ecological risk assessment (EPA 1997b, 1997c, 1998b and in **Appendix G**). The BRA included an evaluation of the two areas where releases of hazardous wastes are known to have occurred: the HRIA and the Breen Property. In addition, the BRA evaluated areas downgradient from the HRIA and cross-gradient from the Breen Property. The downgradient area includes the Thurman Berwick Creek Area and the areas west of Labree Road. The BRA had the following objectives:

- Evaluate the risks associated with exposure of human and ecological receptors to chemicals detected in groundwater, soil, sediment, surface water and indoor and ambient air at the HRIA and the Breen Property.
- Evaluate the risks associated with exposure of human and ecological receptors to chemicals detected in groundwater, indoor air and ambient air downgradient of the HRIA and the Breen Property.
- Evaluate the risks associated with exposure of human and ecological receptors to chemicals detected in surface water and sediments in Berwick Creek associated with the HRIA and the Breen Property, and surface water in Dillenbaugh Creek (downstream of Berwick Creek).

Existing environmental data, including groundwater and surface water data collected in July 2007 and indoor and outdoor air data collected in November 2007, were reviewed to determine COPCs. Chemical concentrations were summarized for five Site locations (areas upgradient of the HRIA, the HRIA, the Breen Property, downgradient areas, and Berwick and Dillenbaugh Creeks) and compared to risk-based screening benchmarks for human and ecological health. The following COPCs related to human health at the HRIA, Breen Property, downgradient areas, and Berwick and Dillenbaugh Creeks were identified from the risk screening and evaluated in the BRA:

- PCE
- TCE
- cis-1,2-DCE
- Vinyl Chloride

- Methylene Chloride
- Tetrahydrofuran

No COPCs were identified for the areas upgradient of the HRIA.

The following COPCs were evaluated for ecological risk:

- PCE
- TCE
- cis-1,2-DCE

For both human health and ecological risk, petroleum hydrocarbons (gasoline and heavier fractions) were retained as presumptive primary COPCs. These constituents will be further assessed once sufficient data are obtained.

6.1 Summary of the Human Health Risk Assessment

The human health risk assessment examined several exposure pathways that were considered potentially complete for receptors working at the HRIA or the Breen Property or for residents living in downgradient areas. As shown on the conceptual site model included as **Figure 6-1**, the exposure pathways evaluated include:

HRIA and Breen Property:

Indoor commercial/industrial worker:

- Incidental soil ingestion and dermal contact (current/future).
- Inhalation of vapors from the subsurface (groundwater and soil) in outdoor or indoor air (current/future).
- Ingestion of groundwater in the shallow aquifer as drinking water (future).
- Inhalation of VOCs from groundwater vapors while showering (future).

Construction/utility worker:

- Incidental soil ingestion and dermal contact (current/future).
- Inhalation of vapors from the subsurface (groundwater and soil) in outdoor air (current/future).
- Inhalation of vapors in a trench from groundwater at three subareas within the HRIA (current/future).
- Ingestion of groundwater in the shallow aquifer as drinking water (future).

Potential Trespasser

- Incidental soil ingestion and dermal contact (current/future).
- Inhalation of vapors from the subsurface soil in outdoor air (current/future).

Downgradient Areas:

Resident receptor (adult and child):

- Inhalation of vapors from the subsurface (shallow groundwater) in indoor and outdoor air (current/future).

- Ingestion and dermal contact with groundwater in the shallow aquifer as drinking water (future).
- Inhalation of VOCs from groundwater vapors while showering (future).

Berwick Creek/Dillenbaugh Creek:

Current/future recreational receptor (adult and child):

- Incidental ingestion and contact with surface water or sediments during recreation in Berwick Creek and/or Dillenbaugh Creek.
- Ingestion of fish taken from Berwick or Dillenbaugh Creek.

The estimated noncancer and individual excess lifetime cancer risks to the aforementioned receptors are summarized below:

HRIA Commercial/Industrial Worker: Noncancer hazards and cancer risks were estimated for a long-term commercial/industrial employee working at either the main building or maintenance building of the United Rentals property located at the HRIA. Exposure to contaminants in soil (incidental ingestion, contact, and volatilization to outdoor air) and groundwater (drinking, vapors during showering, and volatilization to indoor air) were evaluated. Under current use scenarios (indoor and ambient air inhalation and soil contact and ingestion), HQs and individual excess lifetime cancer risks were less than 1 and less than $8x10^{-5}$, respectively. If chemical concentrations persist in groundwater and it is used as a drinking water source in the future, estimated noncancer hazard indices would be elevated (HI = 55-65) and individual excess lifetime cancer risks would be approximately $1x10^{-1}$ (i.e., a 10% probability of an excess cancer risk). Noncancer and cancer risks were primarily driven by PCE concentrations found in groundwater (i.e., the drinking water pathway). Because the total risk from exposure to contaminated soil for commercial/industrial worker in the HRIA is $8x10^{-5}$; which is higher than MTCA C acceptable cancer risk level of 1×10^{-5}, the soil pathway may pose the most current risk to individuals who work in this area.

HRIA Construction/Utility Worker: Noncancer hazards and cancer risks were estimated for a short-term employee working at the HRIA. Exposure to contaminants in soil (incidental ingestion, contact, and volatilization to outdoor air) and groundwater (drinking and volatilization to trench air) were evaluated. Outdoor air and soil HQs and individual excess lifetime cancer risks were less than 1 and less than $1x10^{-5}$, respectively, under current use scenarios. If chemical concentrations persist in groundwater and it is used as drinking water source in the future, estimated noncancer hazard indices would be 4.4 and estimated individual excess lifetime cancer risks would be approximately $3x10^{-4}$. Based on a model that estimates COPC concentrations in trench air from groundwater at three HRIA subareas, estimated noncancer hazard indices ranged from 1.3 to 121 and estimated individual excess lifetime cancer risks ranged from $4x10^{-5}$ to $2x10^{-3}$. Noncancer and cancer risks from a possible future drinking water pathway were primarily driven by PCE concentrations found in groundwater, while the estimated cancer risks from trench exposures were driven by both PCE and TCE. Based on trench air concentrations that were modeled (estimated) from groundwater concentrations in three subareas of the HRIA, construction or utility workers may be at substantial risk from inhalation of VOCs if exposed for a sufficient duration without any personal protection. This assessment assumed a total exposure of 500 hours over the course of one year. Given the high risk estimates (individual excess lifetime cancer risks up to $2x10^{-3}$ and a noncancer hazard index up to 121), even the assumption of a much lower exposure duration by workers in HRIA subarea trenches would have resulted in estimates of unacceptable risk. However, the accuracy of the model for estimating VOC concentrations in trench air from groundwater

concentrations has not been validated for the Site and this represents a large uncertainty. If trenching does occur in these subareas in the future, it is recommended that workers use appropriate personal protection and/or air concentrations of VOCs in the trench(es) should be analytically verified to refine the risk estimates.

Breen Commercial/Industrial Worker: Noncancer hazards and cancer risks were estimated for a long-term commercial/industrial employee working at one of four buildings (A, B, C, and Livestock Auction) on the Breen Property. Exposure to contaminants in soil (incidental ingestion, contact, and volatilization to outdoor air) and groundwater (volatilization to indoor air, drinking, and showering) were evaluated. Soil, outdoor air, and indoor air HQs and individual excess lifetime cancer risks were less than 1 and less than $1x10^{-5}$, respectively, under current use scenarios. If chemical concentrations persist in groundwater and it is used as drinking water source in the future, estimated noncancer hazard indices would be slightly elevated (HI = 1.5) and estimated individual excess lifetime cancer risks would be approximately $3x10^{-3}$. Noncancer hazards and cancer risks were primarily driven by PCE concentrations found in groundwater (i.e., drinking water pathway). Thus, the current concentrations of VOCs, particularly PCE, have the potential to result in increased health risks to people drinking contaminated groundwater and working long-term at the Breen Property. However, the buildings at the Breen Property are currently using municipal water sources rather than local groundwater sources for drinking water.

Breen Construction Worker: Exposure to contaminants in soil (incidental ingestion, contact, and volatilization to outdoor air) and groundwater (drinking) were evaluated. Outdoor air and soil HQs and individual excess lifetime cancer risks were more less than 1 and less than $1x10^{-5}$, respectively, under current use scenarios. If chemical concentrations persist in groundwater and it is used as drinking water source in the future, estimated noncancer hazard indices would be less than 1.0 and estimated individual excess lifetime cancer risks would be approximately $9x10^{-6}$. Noncancer hazards and cancer risks were primarily driven by PCE concentrations found in groundwater (i.e., drinking water pathway). Based on the risk estimates derived for current use, it appears that contaminants detected in soil, as well as outdoor air do not pose unacceptable risks to construction workers in the Breen area.

HRIA and Breen Potential Trespasser: Individual excess lifetime cancer risks to a construction or utility worker at the HRIA or Breen area were based on the assumption that a construction worker could work at the Site for twenty eight-hour days for one year, and excess individual lifetime cancer risks due to exposures to outdoor air and soil are estimated to be less than $1x10^{-6}$. Given the potential trespasser exposures would likely be less frequent and of shorter duration, cancer risks to a trespasser would also be less than $1x10^{-6}$.

Downgradient Residents: Indoor air samples were collected at six downgradient residences, one of which also operates as a commercial business. Estimated noncancer hazards were all below 1.0 and estimated total individual excess lifetime cancer risks ranged from 6.9 x 10-7 to 4.7 x 10-6 (Table 2-10a). For the majority of the residences, TCE contributed the most to the total individual excess lifetime cancer risk. Overall, excess cancer risks from inhalation of indoor air at the six locations do not exceed 1 x 10-5.

Noncancer hazards and cancer risks were evaluated for a number of downgradient groundwater wells, representing a range of exposure for potential future single-family residences (under a scenario where future residences obtain their water from wells, rather than municipal water supply, and COPC concentrations in groundwater are unchanged). Risks were evaluated for children and adults using the

groundwater system for domestic use (pathways include drinking water, showering). Estimated noncancer risk (ingestion and dermal pathways, all COPCs) for children ranged from 24.75-49.97. Estimated noncancer hazards (ingestion and dermal pathways, all COPCs) for children ranged from 25 to 50 and for adults ranged from 7 to 13 Individual excess lifetime cancer risks for children varied by groundwater well and ranged from $1x10^{-2}$ to $2x10^{-2}$. Individual excess lifetime cancer risks for adults varied by groundwater well and ranged from $2x10^{-2}$ to $3x10^{-2}$. Thus, depending on the well, current groundwater concentrations indicate the potential for increased health risks (primarily from drinking or showering pathways) to future residents living downgradient of the HRIA and the Breen Property if the COPC concentrations persist and groundwater is used as a drinking source rather than the municipal water supply. As discussed previously, those wells located at residences downgradient of the water supply line do not show signs of contamination or risks under current use exposures.

Berwick Creek and Dillenbaugh Creek Recreator: Noncancer and cancer risks were estimated for adults and children recreating infrequently at Berwick Creek or Dillenbaugh Creek. Exposure to contaminants in surface water (incidental ingestion and contact) and sediment (incidental ingestion and contact) were evaluated. At Berwick Creek, estimated noncancer hazard indices for both adults and children were less than 1.0. The estimated individual excess lifetime cancer risks were approximately $2x10^{-4}$ for the HRIA (both adults and children) and $7x10^{-6}$ and $2x10^{-6}$ for adults and children, respectively, for the downgradient areas. Individual excess lifetime cancer risks were predominantly driven by PCE concentrations identified in sediment associated with the HRIA in Berwick Creek. At Dillenbaugh Creek, hazard indices were less than 1.0 and the estimated cancer risks were $1x10^{-6}$ and $4x10^{-7}$ for adults and children, respectively (due to the lack of sediment chemistry data for Dillenbaugh Creek, downgradient sediment concentrations for Berwick Creek were assumed).

The screening level assessment for anglers that may consume fish taken from Berwick or Dillenbaugh Creeks shows that surface water concentrations of PCE in these creeks exceed surface water screening concentrations that correspond to a cancer risk of 10^{-6} or a hazard index of 1.0. Concentrations of TCE and methylene chloride do not exceed their screening level benchmarks.

6.2 Summary of the Ecological Risk Assessment

The ecological risk assessment examined several exposure pathways that were considered potentially complete for ecological receptors living or visiting the Site. As shown on the conceptual site model included as **Figure 6-1**, the exposure pathways evaluated include:

HRIA, Breen Property, and Downgradient Areas: Birds and mammals were evaluated for incidental ingestion of contaminants in soils located at the HRIA. In addition, burrowing mammals (shrew) were evaluated for inhalation of volatile organics in burrow air. Terrestrial plants were evaluated for uptake of contaminants in groundwater and soils.

Berwick Creek/Dillenbaugh Creek: Birds (bald eagle, American robin, and mallard duck) and mammals (shrew, raccoon, and white-tailed deer) were evaluated for incidental ingestion of contaminants in surface water and sediment. Salmonids were evaluated for direct contact with surface water.

The estimated risks to ecological receptors are summarized below.

Wildlife

Avian Receptors (Bald Eagle, American Robin, and Mallard Duck): No elevated risks for bald eagles were identified for any COPCs at any of the locations evaluated. However, American robin risks were elevated for PCE from ingestion of soils, surface waters, and sediments at all Site locations (HQs = 1.3 to 11). Mallards had slightly elevated HQs (3.0) for PCE at the HRIA and the Breen Property. The risks to robins and mallards are primarily due to their high soil/sediment ingestion rate and the elevated PCE concentrations identified in Berwick Creek sediments.

Mammalian Receptors (Shrew, Raccoon, and Deer): Mammalian receptors were evaluated for incidental ingestion of Site soils, Berwick Creek surface water and sediments, Dillenbaugh Creek surface water, and inhalation of volatiles from Site soils (shrews only). Elevated risks were found for shrews at the HRIA from ingestion of PCE in soils, surface water or sediment (HQ = 1.2) and inhalation of PCE in burrows (HQ = 50). Elevated risks were also identified for PCE at the Breen Property from inhalation of VOCs in burrow air (HQs = 1.3 to 6.8). Raccoons (HQs = 8.5 to 43) and deer (HQs = 1.2 to 6.6) had elevated HQs for PCE at the HRIA and the Breen Property. Ingestion of PCE in soils, surface water, and sediments in the downgradient areas did not indicate an elevated risk to any mammalian receptor (HQs < 1.0). Ingestion risks were primarily driven by the high PCE concentrations found in Berwick Creek sediments associated with the HRIA.

Aquatic Life

Aquatic receptors (e.g., salmonids) were evaluated for direct contact to chemicals in surface waters of Berwick Creek and Dillenbaugh Creek. Current concentrations of cis-1,2-DCE, PCE, and TCE are not expected to result in elevated risks to aquatic organisms.

Terrestrial Plants

Minimal risks were quantified for terrestrial plant receptors at all Site locations, with the exception of PCE in groundwater at the HRIA area (HQ = 7.3).

6.3 Conclusions of the Baseline Risk Assessment

The following are the general conclusions from the Hamilton/Labree Roads BRA:

The overall results of the human health risk assessment indicate that current contaminant concentrations (predominantly PCE) in groundwater represent a potential for adverse risks to future Site workers and downgradient residents if the plume persists and groundwater is used for domestic purposes. Currently, these receptors are either connected to the municipal water system or are not currently affected by the contaminated groundwater plume. In addition, construction or utility workers potentially working in a trench at the HRIA may be at unacceptable risk from inhalation of VOCs based on trench air concentrations estimated from groundwater concentrations; however, the estimated trench air concentrations have high uncertainty. Nevertheless, as a precaution, it is recommended that workers use appropriate personal protection if trench work is required (or VOC concentrations in trenches should be analytically verified prior to commencement of work). The total estimated individual excess lifetime cancer risks for commercial/industrial workers at the Breen area slightly exceed the risk threshold under MTCA C. However, the exceedance is not significant and suggests that contaminants at the Site would not pose any appreciable individual excess lifetime risk to commercial/industrial workers. Estimated risks from the volatilization of contaminants in groundwater to indoor air are below the risk threshold level at the HRIA and the Breen Property, as well as downgradient residences. However, additional

indoor air sampling is necessary to refine the indoor air inhalation risk estimates. Recreational activities at Berwick Creek are anticipated to be of minimal concern if conducted away from the primary PCE spill source at the HRIA.

The overall results of the ecological risk assessment indicate that current contaminant concentrations of PCE in subsurface soils and sediment associated with the HRIA spill area may represent a potential for elevated risks to organisms. The potential risk estimates for ecological receptors can be refined in further evaluations because (1) highly conservative exposure estimates were utilized in this BRA, and (2) the HRIA spill area is generally confined to a small area within Berwick Creek, although PCE (but not the other COPCs) was detected in Dillenbaugh Creek surface water.

Overall, PCE and associated VOC risks are localized in groundwater, soils, and sediments. Domestic use of groundwater is the primary concern at the Site (i.e., HRIA and Breen Property, and downgradient areas) and institutional controls (i.e., use of municipal water systems rather than groundwater sources and restricted access to the HRIA and Breen Property) will minimize exposure to contaminants associated with the HRIA and the Breen Property. The potential inhalation risks from VOCs, particularly PCE and TCE, in trenches at select subareas of the HRIA are also of concern and necessary institutional controls (e.g., personal protection) should be considered to reduce exposures via this route (or trench air concentrations could be empirically determined to refine the risk estimates before workers spend time in a trench).

Due to the uncertainties and limitations summarized in the Sections 2.4.2 and 3.5.4 of the *Draft Baseline Risk Assessment Technical Memorandum*, and as detailed in the **Section 7.5** of this remedial investigation report, additional sampling and analysis will need to be conducted across the Site. This is especially true for contaminated groundwater in the upper portion of the shallow aquifer and the potential risks from vapor intrusion. Additional characterization of the HRIA will be completed after an interim Record of Decision is implemented for this source area. Characterization of the rest of the Site will be completed separately from the HRIA during continued remedial investigations culminating in a separate and final Record of Decision for the Site. As new information is obtained, new risk assessments will be performed.

Section 7
Summary and Conclusions

This RI report focuses mainly on the contamination originating at the HRIA. The Breen Property, Thurman Berwick Creek Area, and the downgradient areas have not yet been fully characterized. A separate RI report will be prepared for these other areas. This report, however, does include information on the investigations and data results from these three other areas to better understand Site-wide groundwater contamination, especially contamination attributable to the HRIA.

This section focuses on the characteristics, migration, and potential impacts of the HRIA contamination, and it provides a summary of the findings of the RI and conclusions based on these findings. However, Section 7.5 (Recommendations for Future Actions) includes recommended future investigations for the other areas of the Site that will help to better understand downgradient migration of the groundwater plume from the HRIA and interactions with the plumes originating from other Site areas.

7.1 Contamination Summary

The COPCs across the Site are PCE and its degradation products TCE, cis-1,2-DCE, and vinyl chloride, and the chemicals tetrahydrofuran and methylene chloride. PCE has been detected more frequently and at much higher concentrations than the other COPCs, and it is the primary risk driver according to the BRA. Therefore, for the purpose of discussing contamination at the Site, PCE is the indicator or primary COPC. Petroleum hydrocarbons (gasoline and heavier fractions) are also considered a presumptive COPC until proven otherwise.

7.1.1 Soil

Soil depths have been divided into three categories for purposes of delineating PCE contamination: surface, near surface and subsurface. In general, surface soils at this Site are defined as 0 to 5 feet bgs and near surface soil at 5 to 10 feet bgs. Subsurface soils exist at depths greater than 10 feet to typically the top of the aquitard at 50 feet bgs.

7.1.1.1 Surface and Near Surface Soils

Currently, the only identified surface/near surface soil source of PCE in groundwater is creek bed sediment/soil in the HRIA (Section 7.1.5). Only minor surface soil contamination has been identified at the Breen Property.

No surface or near surface soil samples from the Thurman Berwick Creek Area or downgradient areas west of Labree Road contained detectable PCE concentrations.

Additional investigations are required at the Breen Property to attempt to identify the source of groundwater contamination, which may include unidentified surface or near surface soil contamination. A technical memorandum describing data gaps related to the Breen Property is presented in **Appendix C.**

7.1.1.2 Subsurface Soil

The highest concentrations of PCE were detected in subsurface soil at the HRIA and appeared to be directly related to PCE DNAPL (based on the high PCE concentrations) in subsurface soils beneath the apparent PCE release in Berwick Creek. Only minor subsurface concentrations of PCE have been detected in subsurface soils at the Breen Property.

Available subsurface soil data for the Thurman Berwick Creek Area and downgradient areas west of Labree Road are limited. PCE has been detected in soil at four locations in the Thurman Berwick Creek Area with a maximum concentration of 1.3 mg/kg. Soil data are available for one boring located west of Labree Road (MW-25) where there was a maximum detected concentration of 0.13 mg/kg in a sample from 40 feet bgs. PCE was not detected in shallower samples.

Additional investigations are required at the Breen Property to attempt to identify the source of groundwater contamination, which may include unidentified subsurface soil sources.

7.1.2 Groundwater

At the HRIA, the primary source of PCE in groundwater is where PCE was spilled or released to Berwick Creek in the Southeastern Hot Spot (**Figure 4-1**). Based on high PCE concentrations, DNAPL is inferred to exist in the shallow aquifer beneath the apparent release location to a depth of approximately 35 feet. Additional investigations are required to identify remaining sources for the shallow aquifer PCE contamination at the Breen Property and the downgradient extent of the associated groundwater plume.

PCE concentrations greater than 1,000 µg/L have been detected in groundwater samples collected from private well PW-9 and in shallow groundwater samples collected from several monitoring wells located in the Thurman Berwick Creek Area downgradient of, and adjacent to, Berwick Creek. Because PCE concentrations have been identified in shallow groundwater, a local source of contamination is probable.

Based on the groundwater modeling completed for the Site, the plume emanating from the HRIA is estimated to end approximately 500 feet west of Labree Road, assuming the release into Berwick Creek did not occur much before 1990. If so, the majority of the downgradient groundwater plume west of Labree Road most likely originated from the Breen Property and the Thurman Berwick Creek Area. Moreover, a north-south zone east of where North Hamilton Road crosses Berwick Creek, between RS-2 and RS-24, appears to act as a vertical PCE transport “bottleneck”, where significant amounts of PCE transport in the upper zone of the shallow aquifer to the Breen Property and the Thurman Berwick Creek Area is limited. Within this zone, the upper 20 feet of the shallow aquifer has little to no PCE contamination. Therefore, the PCE contamination in the upper portion of the aquifer west of this north-south zone could not have come from the HRIA. PCE concentrations in lower portions of the shallow aquifer in the Thurman Berwick Creek Area reflect mixing between deeper groundwater contamination from the Breen Property or upgradient Berwick Creek sources and deeper groundwater contamination from the HRIA.

Currently, the extent of the PCE groundwater plume downgradient of the Breen Property and the Thurman Berwick Creek Area west of Labree Road is unknown. In contrast to the area between United Rentals and the suspected Breen and Thurman Berwick Creek source areas, PCE concentrations in the core of this portion of the plume decline very little with distance, suggesting that the plume could extend much further downgradient than currently observed. In addition, the plume edges in the downgradient area west of Labree Road have not been adequately established, particularly on the northeast edge parallel to I-5.

Additional investigations are needed to define the extent of groundwater contamination.

7.1.3 Surface Water

Surface water data indicate that concentrations of PCE in surface water do not pose a risk to aquatic receptors within Berwick Creek or Dillenbaugh Creek. The source of the PCE detected in surface water samples collected at several stations may be residual contamination that is dissolving from PCE entrained in the creek bed sediment/soil.

No surface water sampling has been completed in Berwick Creek in the northern portion of the HRIA between MW-R4 and MW-5/MW-33. High PCE concentrations have been detected in upper zone wells MW-R3 (Northwestern Hot Spot) and MW-33. It is unknown if contaminated groundwater related to these areas is potentially discharging to surface water in this area.

Surface water sampling in Dillenbaugh Creek in July 2007 indicated that PCE is present in surface water. The concentrations are most likely related to discharge of PCE-contaminated groundwater to Dillenbaugh Creek. The extent of the groundwater plume is unknown, and if the centerline of the plume crosses Dillenbaugh Creek, higher concentrations may discharge farther downstream. Additional chemical data are necessary to adequately characterize impacts to surface water in the downgradient areas.

7.1.4 Creek Bed Sediment/Soil

Creek bed sediment/soil contamination appears to be primarily confined to the HRIA and an area immediately downstream of this location. PCE DNAPL has been identified in a silt layer beneath the Berwick Creek bed. This layer likely provides a continuing source of PCE to groundwater.

No creek bed sediment/soil samples have been collected from Berwick Creek in the northern portion of the HRIA, particularly in the segment between MW-R4 and MW-5/MW-33 where there appears to be another contamination source. It is unknown if there is a separate potential creek source for the contamination detected in MW-33.

PCE concentrations up to 3,740 µg/L have been detected in groundwater samples collected from private well PW-9 located in the Thurman Berwick Creek Area downgradient of the portion of the HRIA plume that exceeds 1,000 µg/L. No source for the PCE in excess of 1,000 µg/L in groundwater has been identified (Section 4.3.3). A possible source for the contamination may be release(s) to Berwick Creek south of the Breen Property immediately upstream of North Hamilton Road (near MW-30) and downstream in the area of MW-32. Conceivably, PCE DNAPL flowed down Berwick Creek from the HRIA release and settled into this reach, but the lack of evidence of DNAPL in the intervening creek bed deposits makes this scenario highly speculative. Additional sampling of sediment/soil in Berwick Creek in this area is necessary to assess if a release has occurred. A technical memorandum describing data gaps related to this and other downgradient areas is presented in **Appendix C**.

7.1.5 Indoor and Ambient Air Quality

Air sampling data collected from the Site showed low levels of PCE in the majority of the residential, commercial, and ambient locations. However, the estimated risks from the volatilization of contaminants in groundwater to indoor air are below the risk threshold level at the HRIA and Breen Property, as well as downgradient residences.

Based on the results of investigations to assess the downgradient extent of upper zone groundwater contamination (Section 7.1.2), additional air sampling and assessment of vapor intrusion may be required at residences along Rice Road and other downgradient locations.

7.2 Results of Fate and Transport Analysis

In general, monitoring wells located downgradient of the HRIA release area continue to show an increase in PCE concentration over time. Wells located at the upgradient edge of the release area (i.e., MW-9) or cross-gradient (i.e., MW-R11) have shown decreased concentrations with time. Biochlor modeling suggests that the HRIA plume is likely to continue to migrate for some time even if PCE concentrations in the release area are removed and the dissolved concentrations are reduced by 85 percent. The PCE remaining in groundwater will continue to attenuate through natural processes, including physical advection of dissolved PCE in groundwater, chemical dispersion, simultaneous dilution, and sorption to aquifer materials. Biodegradation is not considered to be a major natural attenuation process at the Site, with the possible exception of contamination in the upper zone of the shallow aquifer around Building B on the Breen Property. Based on the results of the modeling completed using Biochlor, natural attenuation of the PCE concentrations remaining in groundwater will require several hundred years near the HRIA release area.

PCE-contaminated groundwater appears to have discharged to surface water (Dillenbaugh Creek) downgradient and cross-gradient of MW-25. It is not understood how contaminated groundwater discharge to the creek is affecting the plume migration (i.e., is the majority of the PCE plume discharging to the creek or continuing down the valley?). Additional data related to groundwater/surface water interaction in the downgradient areas are needed to adequately characterize impacts to surface water.

The evaluation of fate and transport is limited by an incomplete understanding of site conditions including:

- Horizontal and vertical gradients in and between the upper and lower zones of the shallow aquifer
- Seasonal variations in gradients
- Depth-discrete variations in hydraulic conductivities and preferential pathways associated with relatively higher-conductivity stratigraphic layers

7.3 Results of Risk Assessment

Overall, PCE and associated VOC risks are localized in groundwater, soil, and sediment. Domestic use of groundwater is the primary human health concern at the Site (i.e., HRIA and Breen Property, and downgradient areas) and institutional controls (i.e., use of municipal water systems rather than groundwater sources and restricted access to the HRIA and Breen Property) will minimize exposure to contaminants associated with the HRIA and the Breen Property. The potential inhalation risks from VOCs, particularly PCE and TCE, in trenches at select subareas of the HRIA are also of concern, and

necessary institutional controls (e.g., personal protection) should be considered to reduce exposures via this route (or trench air concentrations could be empirically determined to refine the risk estimates before workers spend time in a trench).

The overall results of the ecological risk assessment indicate that current contaminant concentrations of PCE in subsurface soil and sediment associated with the HRIA spill area may represent a potential for elevated risks to organisms. However, risks to ecological receptors are ultimately considered to be minimal because (1) highly conservative exposure estimates were used in the BRA, and (2) the HRIA spill area is generally confined to a small area within Berwick Creek, although PCE (but not the other COPCs) was detected in Dillenbaugh Creek surface water.

Due to the uncertainties and limitations related to data gaps for soil, groundwater, and surface water analysis, additional sampling and analysis will need to be conducted across the Site. This is especially true for contaminated groundwater in the upper zone of the shallow aquifer and the potential risks from vapor intrusion, as well as the downgradient extent of the plume and whether it discharges to surface water.

7.4 Study Limitations

The limitations of this RI range from data gaps affecting the ability to delineate the magnitude and extent of PCE contamination to gaps in the fundamental understanding of the Site which could significantly alter the CSM. Resolution of some of these issues could require information that may never be available (e.g., historical information regarding activities in source areas).

7.4.1 Conceptual Limitations

Investigations at the Site have not been sufficient to explain basic contaminant migration relationships and processes, including:

- Determining the nature, age, and location of all sources contributing to the Site-wide contaminant plume.
- Explaining the large spatial differences in source-to-plume mass-transfer processes, both vertically and horizontally, as evidenced by the apparent “bottleneck” downgradient of the HRIA (**Figure 4-5**), which is in sharp contrast to the much lower rate of contaminant decline with distance downgradient of Labree Road.
- Delineating the fate and limits of the Site plume as it extends beyond RS-20, particularly, whether it discharges to surface water.
- Understanding site hydraulic conditions including:
    - Horizontal and vertical gradients in and between the upper and lower zones of the shallow aquifer
    - Seasonal variations in gradients
    - Depth-discrete variations in hydraulic conductivities and preferential pathways associated with relatively higher-conductivity stratigraphic layers within the shallow aquifer

- Delineating the impacts of contamination in the deep aquifer within the HRIA, Breen Property, and Thurman Berwick Creek Areas.
- Evaluating the relative contribution from the HRIA, Breen Property and/or Thurman Berwick Creek Area contaminant sources on contaminant mass loading to the Site-wide contaminant plume.

Additional characterization can resolve some of these issues, while others will require more sophisticated analysis. For example, a stable isotope study may be conducted to attempt to distinguish between the PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek Area. Analyzing for tentatively identified compounds (TICs) may also be useful to distinguish PCE from different disposal sources if the PCE was used for different purposes and contained different additives and stabilizers. This study may also provide information on how the groundwater plume is migrating through the Site and help resolve the following data gaps:

- Whether the PCE at the Thurman Berwick Creek Area is related to the HRIA release or associated with the Breen Property contamination.
- The extent of PCE related to the HRIA source in the deeper portion of the plume downgradient of Labree Road.
- The source of PCE detected in private well PW-21.

7.4.2 Data Limitations

The data used to develop this RI report were collected during numerous investigations conducted at the Site between 1993 and 2007. In several cases, conclusions developed by the entity that collected and interpreted the original data were used to complete this RI. This was primarily true for the data and interpretation completed for the HRIA as described in the EE/CA (URS 2004).

Based on review of historical data, soil samples collected at the Site for VOC analysis do not appear to have been collected and preserved using the protocols under EPA Method 5035A with the exception of the sampling done in the HRIA in 2003 for the EE/CA (URS 2004). The primary goal of this VOC collection and preservation technique is to minimize the direct volatilization of contaminants in soil to the atmosphere. Since EPA Method 5035A does not appear to have been used during soil sample collection at either the Breen Property or the Thurman Berwick Creek Area, there is a strong probability that VOC analytical results are biased low for those areas, especially for samples collected from the gravelly materials that comprise the shallow aquifer.

A large body of groundwater data exists for the Site, but it is unevenly distributed, both horizontally and vertically. For example, little data are available in the plume downgradient of Labree Road. Vertically, the data come from a wide mix of screened-interval lengths, including: 1) 1-foot intervals in temporary borings, 2) monitoring wells with conventional 10-foot screens, 3) monitoring wells screened across the entire shallow aquifer, and 4) private wells of unknown construction. Consequently, data interpretation requires subjective judgments as to which data should be honored, emphasized, or disregarded.

The most recent groundwater monitoring and sampling data collected at the Site were used to assess groundwater flow and plume migrations. The last extensive groundwater sampling occurred at the Site

in November 2003. These 2003 groundwater data were supplemented with the results of a limited groundwater sampling event conducted in July 2007 to assess the current PCE plume movement throughout the Site.

Creek channel samples CC-1 through CC-9 were collected by Farallon (2004) from Berwick Creek south of the Breen Property. The samples were collected from the creek bed at approximately 1 foot bgs. Based on available sample collection information, it is unclear whether these samples were collected from sediment accumulations in the creek channel or if the samples were collected from the silt layer that composes the creek bottom. Based on the creek bed sampling results for the HRIA (URS 2004), the PCE concentrations were mainly detected within the silt layer. Creek bed samples CC-1 through CC-9 may not represent the actual PCE concentration in the Berwick Creek bed near the Breen Property.

Limited data regarding groundwater and surface water interaction were available downgradient of the Breen Property. Surface water data were collected in July 2007 from Dillenbaugh Creek, but were limited to two samples.

7.5 Recommendations for Future Actions

A summary of recommended future actions at the Site is presented below. Additional details are presented in Technical Memorandum: Revision 4 Final Hamilton/Labree Roads Study Limitations Analysis (EPA 2011b) contained in **Appendix C**.

Site-Wide

- Conduct aquifer testing in the area downgradient of the United Rentals facility and downgradient and west of Labree Road to better define Site-wide hydraulic conductivity.
- Evaluate depth-discrete variations in hydraulic conductivities and preferential pathways associated with relatively higher-conductivity stratigraphic layers within the shallow aquifer by conducting aquifer testing within temporary boreholes and completed wells screened at discrete depths within the aquifer and including information in numeric and 3D EVS modeling.
- Evaluate horizontal and vertical hydraulic gradients Site-wide in and between the upper and lower zones of the shallow aquifer and assess seasonal gradient shifts in direction by collecting comprehensive gradient data at least quarterly for one year.
- Collect soil core samples for analysis of porosity, density, and grain size to better define Site-wide aquifer characteristics.
- Conduct additional assessment and mapping of the Site-wide vertical distribution of PCE in groundwater. In particular, contaminant characterization of the upper zone of the shallow aquifer between the transport “bottleneck” and the Thurman Berwick Creek Area; in the lower zone of the shallow aquifer between the United Rentals building and the transport “bottleneck,” and vertical and horizontal plume transects from Labree Road to the end of the plume.
- Evaluate the relative contribution of the HRIA, Breen Property and/or Thurman Berwick Creek Area contaminant sources on contaminant mass loading to the Site-wide contaminant plume by evaluating mass discharge of contaminants from the proposed transects.
- Sound the depth of private wells with no logs that are within the plume.

- Conduct a stable isotope study, including analysis of TICs, to distinguish PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek Area.
- Update Site-wide EVS modeling using newly acquired Site chemical and physical data and the three dimensional modeling using newly collected aquifer parameters.
- Install shallow piezometers within the stream bed along Berwick and Dillenbaugh Creeks to measure head differences between the surface water of the creek and the groundwater within the bed/or slightly below the bed of the creek in order to determine where gaining and losing reaches of the creek exist and their influence on contaminant fate and transport.
- Conduct additional indoor and ambient air sampling following completion of the remedial action at the HRIA.
- Since completion of the City water main extension in November 2002, production wells local to the HRIA and Thurman Berwick Creek Areas have not been influencing the groundwater flow regime. However, numerous water supply wells exist within a 4-mile radius of these sites and may have some influence on gradient conditions recorded at the site during these historical investigations. This influence needs further characterization through analytical and/or numerical modeling efforts to enhance understanding of past and present pumping well influence to plume migration and inform institutional controls, if needed, to maintain protection of existing potable water supplies.
- Delineate the impacts of contamination in the deep aquifer within the HRIA, Breen Property and Thurman Berwick Creek Areas by installing additional, deep monitoring wells. These wells would need to be carefully installed using best practices to prevent contamination from the shallow aquifer from migrating to the deep aquifer during and after well construction.

HRIA

- Collect surface water samples in the section of Berwick Creek between approximately MW-R4 and MW-33. No surface water sampling appears to have been conducted in this length of Berwick Creek.
- Collect sediment/soil samples in the section of Berwick Creek between approximately MW-R4 and MW-33 to attempt to identify potential creek sources to groundwater contamination.
- Collect depth-specific groundwater samples from the MW-600 series wells. If results indicate significant downward migration of contamination, these wells should be abandoned.
- Conduct pre-remedial design soil sampling to validate which VOCs and other contaminants (such as petroleum hydrocarbons) are present and at what concentrations. The need for this investigation would be assessed once a remedial alternative is selected and prior to remedial design.
- Conduct pre-remedial design groundwater sampling and analysis for petroleum hydrocarbons, metals, SVOCs, and pesticides, especially at source areas.

“Bottleneck”

- Conduct one to two north-south transects between MW-3 and MW-22/23. Groundwater samples would be collected at four different intervals in each boring: a shallow interval (upper 5 feet of the aquifer), from approximately 15 to 25 feet bgs, from approximately 30 to 40 feet

bgs, and a deep sample from approximately 40 feet bgs to the bottom of the aquifer (typically around 50 feet bgs).

- Install borings to characterize and define the north and south ends of the "bottleneck" and south of MW-24 to RS-24.
- Install east-west centerline borings in both the northern and southern plume lobes to fill in between north-south transects.
- Install a transect extending east and west from the HRIA source area containing DNAPL (Southeastern Hot Spot) to the Thurman Berwick Creek area. Collect lithologic information and aquifer parameters. Groundwater sampling would be completed at the same intervals as discussed for the two north-south transects between MW-3 and MW-22/23. Use information from this transect to prepare a cross-section identifying conditions from the HRIA, through the "bottleneck", and to the Thurman Berwick Creek Area.

Breen Property

- Conduct a geophysical investigation in areas not previously investigated to attempt to locate potential sources.
- Conduct a subsurface investigation in the areas described in Section 4.3.2 and areas containing geophysical anomalies that were not previously evaluated. Analysis would include VOCs and petroleum hydrocarbons.
- Install additional monitoring wells in areas identified by the subsurface investigation to better assess the groundwater plume and its migration.
- Install additional monitoring wells in the southeastern and central portions of the property to evaluate a potential northern migration pathway from the HRIA.
- Complete a round of groundwater sampling and analysis (including VOCs, petroleum hydrocarbons, metals, field monitored parameters, and conventional chemistry analyses) that would include newly installed wells and existing wells to obtain a current snapshot of the groundwater plume at the Breen Property.
- Soil samples collected from borings must be handled and preserved per EPA Method 5035A and analyzed for VOCs and petroleum hydrocarbons.

Thurman Berwick Creek Area

- Conduct additional sampling of sediment/soil in Berwick Creek between RS-46 and Labree Road to attempt to identify potential creek sources for groundwater contamination in PW-9. Soil samples collected for VOC analysis must be properly preserved per EPA Method 5035A.
- Complete a north-south boring transect running south from boring B-8 to a line running from MW-4 to MW-24. Collect soil and groundwater samples in the same manner as discussed for the "bottleneck" area and Breen Property borings.

Downgradient Areas West of Labree Road

- Install monitoring wells along the plume axis downgradient of the Breen Property between Labree Road and MW-25 to better assess the groundwater plume and its migration.

- Install monitoring wells downgradient of MW-25 along the approximate plume axis, based on a series of boring transects. Proposed well locations should include the area between MW-25 and the suspected leading edge of the plume, at or near the leading edge of the plume, and between the leading edge and a downgradient point(s) where the PCE concentration is not detectable. Groundwater samples would be collected at four different intervals in each boring: a shallow interval (upper 5 feet of the aquifer), from approximately 15 to 25 feet bgs, from approximately 30 to 40 feet bgs, and a deep sample from approximately 40 feet bgs to the bottom of the aquifer (typically around 50 feet bgs).
- Install subsurface borings and collect soil and groundwater samples between RS-47 and I-5 to assess the extent of the groundwater plume from the Breen Property.
- Install subsurface borings and collect soil and groundwater samples in the high-uncertainty area identified in the EVS modeling to the south of RS-49 to assess the extent of the apparent plume from the Thurman Berwick Creek Area and to better assess the portion of the plume upgradient of PW-21.
- Collect surface water samples in Dillenbaugh and Berwick Creeks between Labree Road and MW-28 to assess groundwater/surface water interaction. In addition, collect generally co-located groundwater samples along Dillenbaugh Creek to evaluate the PCE concentrations in groundwater potentially being discharged.
- Depending upon the results of the soil/sediment sampling in the Thurman Berwick Creek Area, collect sediment/soil samples in Berwick Creek between Labree Road and the confluence with Dillenbaugh Creek to attempt to evaluate whether additional creek sources may exist.

Section 8
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Tables

Table 2-1. Historical Site Investigations and Key Findings

Date Range	Investigated by	Scope of Investigation	Key Findings	References
1993-1994	Washington State Department of Health (WDOH)	Sampled 18 private water-supply wells in the Hamilton/Labree Roads area.	Tetrachloroethylene (PCE) detected in 6 wells screened in the shallow aquifer	Ecology 1999b
1996	WDOH	Re-sampled 5 of 6 wells previously exhibiting PCE.	Slight increase in PCE concentrations from 1993-1994 sampling event	Ecology 1999b
1996	Geo-Recon and SAIC (for Washington Department of Ecology [Ecology])	Geophysical reconnaissance investigation on the Breen property for sources, sampled private water-supply wells, and installed monitoring wells in the upper aquifer.	Some geophysical anomalies detected, but no obvious cache of buried drums. PCE concentrations have ranged from 500 to 1,350 micrograms per liter (µg/L) in MW-3 and 2.4 to 7 µg/L in MW-5.	SAIC 1997 and Geo-Recon 1996
1997-2001	Ecology	Quarterly sampling of monitoring wells and private water-supply wells. Installed 7 wells intended for monitoring and remediation, all within the HRIA study area. Sampling of surface water in Berwick Creek.	Generated data for tracking of contaminant concentrations.	Ecology 2000; Ecology 1999b
1998	Transglobal Environmental Geosciences Northwest, Inc. [TEG] (for Ecology)	Sampled soil and groundwater from 28 temporary borings in the Hamilton/Labree Roads area.	Highest concentration of PCE in groundwater was 60,000 µg/L at location B2.	Ecology 1999a
1999	Northwest Geophysical Associates and GeoEngineers for Breen	Located and removed 70 drums and several small containers, and contaminated soil from beneath a building on the Breen property.	Buried drums were a source of PCE in groundwater.	GeoEngineers 2001
2000 – 2001	START contractor (Ecology and Environment, Inc.) for EPA	Four phases of work as part of a time-critical removal action. Installed and sampled temporary borings, monitoring wells, and combined monitoring and recovery wells. All temporary and permanent sampling locations assessed the shallow aquifer, with various sampling and screen depths. Evaluated removal action alternatives.	Implemented the alternative drinking water supply alternative, connecting affected residences and businesses to the City of Chehalis municipal water supply.	EPA 2000, 2001, 2002
2002	Farallon Consulting for Breen	Phase I investigation work for preparation of a site-wide remedial investigation/feasibility study. Within the HRIA study area, collected surface water from Berwick Creek and groundwater from existing monitoring and private water supply wells. Outside of HRIA study area, installed and sampled temporary borings and permanent monitoring wells, collected stream-bed soil samples from Berwick Creek, collected soil gas samples on Breen property.	To date, eliminated some potential sources areas on the Breen property from consideration. Added to understanding of distribution of PCE in soil and groundwater. Found greater downgradient extent of PCE in groundwater than previous investigations.	Farallon 2003
2003-2004	Response Action Contract (RAC) Contractor (URS Group) for EPA	Engineering evaluation/cost analysis investigation for HRIA study area. Performed geophysical survey to look for targets and characterize subsurface. Collected soil gas samples, stream bed and bank soil samples from Berwick Creek, sampled soil and groundwater from temporary Geoprobe borings to 30 feet below ground surface (bgs), sampled soil and groundwater from auger borings to 50 feet bgs, installed and sampled permanent monitoring wells, performed two constant-discharge aquifer performance tests.	Identified source as dumping to Berwick Creek. Delimited dense nonaqueous-phase liquid (DNAPL) zone and zone of highest PCE concentrations. Obtained soil, groundwater, and aquifer characteristics for screening and design of removal and remedial technologies. Installed wells for use in future remediation and monitoring.	URS 2004
2003-2004	Farallon Consulting	Collected soil, groundwater, and surface water data to support the Remedial Investigation/Feasibility Study (RI/FS) on the Breen property. Installed and sampled permanent monitoring wells, performed constant-discharge aquifer performance tests.	Discussed as part of this RI.	Farallon 2004, unreported
2007	Parametrix for EPA	Collected groundwater and surface water data to support and update the Draft Final RI/FS for the site.	Discussed as part of this RI.	Parametrix 2007
2007	EPA Emergency Response Team (ERT)	Collected indoor and ambient air samples in and around private residences and commercial buildings at the HRIA, Breen Property, and other locations at the Site.	Discussed as part of this RI.	EPA 2007

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
AB-1	26-Jun-00	0	4	mg/kg	0.06 U	0.06 U	0.06 U	E&E 2000
AB-1	26-Jun-00	4	8	mg/kg	0.06 U	0.06 U	0.06 U	E&E 2000
AB-1	26-Jun-00	8	12	mg/kg	0.025			E&E 2000
AB-1	26-Jun-00	12	16	mg/kg	0.25			E&E 2000
AB-1	26-Jun-00	16	20	mg/kg	1.2			E&E 2000
AB-1	26-Jun-00	20	24	mg/kg	3.1	0.066 U	0.066 U	E&E 2000
AB-1	26-Jun-00	24	28	mg/kg	0.28			E&E 2000
AB-1	26-Jun-00	28	32	mg/kg	0.018			E&E 2000
AB-1	26-Jun-00	32	36	mg/kg	0.046			E&E 2000
AB-1	26-Jun-00	36	40	mg/kg	0.0031 U			E&E 2000
AB-1	26-Jun-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	E&E 2000
AB-1	26-Jun-00	44	48	mg/kg	0.068 U	0.068 U	0.068 U	E&E 2000
AB-2	27-Jun-00	4	8	mg/kg	0.059 U	0.059 U	0.059 U	E&E 2000
AB-2	27-Jun-00	8	12	mg/kg	0.24			E&E 2000
AB-2	27-Jun-00	12	16	mg/kg	0.16	0.06 U	0.06 U	E&E 2000
AB-2	27-Jun-00	16	20	mg/kg	1.5			E&E 2000
AB-2	27-Jun-00	20	24	mg/kg	0.75			E&E 2000
AB-2	27-Jun-00	24	28	mg/kg	0.58			E&E 2000
AB-2	27-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-2	27-Jun-00	32	36	mg/kg	0.0047 U			E&E 2000
AB-2	27-Jun-00	36	40	mg/kg	0.0104 U			E&E 2000
AB-2	27-Jun-00	40	44	mg/kg	0.0072 U			E&E 2000
AB-2	27-Jun-00	44	48	mg/kg	0.006 U			E&E 2000
AB-2	27-Jun-00	48	52	mg/kg	0.001 U			E&E 2000
AB-3	28-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-3	28-Jun-00	8	12	mg/kg	0.016			E&E 2000
AB-3	28-Jun-00	12	16	mg/kg	0.14	0.06 U	0.06 U	E&E 2000
AB-3	28-Jun-00	16	20	mg/kg	3.6			E&E 2000
AB-3	28-Jun-00	20	24	mg/kg	6.8			E&E 2000
AB-3	28-Jun-00	24	28	mg/kg	0.058 U	0.058 U	0.058 U	E&E 2000
AB-3	28-Jun-00	28	32	mg/kg	0.3			E&E 2000
AB-3	28-Jun-00	32	36	mg/kg	0.0059 U			E&E 2000
AB-3	28-Jun-00	36	40	mg/kg	0.17			E&E 2000
AB-3	28-Jun-00	40	44	mg/kg	0.023			E&E 2000
AB-3	28-Jun-00	44	48	mg/kg	0.086			E&E 2000
AB-3	28-Jun-00	48	52	mg/kg	0.018			E&E 2000
AB-4	28-Jun-00	4	8	mg/kg	1.7	0.19	0.066 U	E&E 2000
AB-4	28-Jun-00	8	12	mg/kg	4.7			E&E 2000
AB-4	28-Jun-00	12	16	mg/kg	2	0.068 U	0.068 U	E&E 2000
AB-4	28-Jun-00	16	20	mg/kg	4.7			E&E 2000
AB-4	28-Jun-00	20	24	mg/kg	0.21	0.06 U	0.06 U	E&E 2000
AB-4	28-Jun-00	24	28	mg/kg	0.62			E&E 2000
AB-4	28-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-4	28-Jun-00	32	36	mg/kg	0.0043 U			E&E 2000
AB-4	28-Jun-00	36	40	mg/kg	0.014			E&E 2000
AB-4	28-Jun-00	40	44	mg/kg	0.0026 U			E&E 2000
AB-4	28-Jun-00	44	48	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-4	28-Jun-00	48	52	mg/kg	0.0014 U			E&E 2000
AB-5	29-Jun-00	4	8	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	8	12	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	12	16	mg/kg	0.061 U	0.061 U	0.061 U	E&E 2000
AB-5	29-Jun-00	16	20	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	20	24	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	24	28	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	28	32	mg/kg	0.06 U	0.06 U	0.06 U	E&E 2000
AB-5	29-Jun-00	32	36	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	36	40	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	40	44	mg/kg	0.001 U			E&E 2000
AB-5	29-Jun-00	44	48	mg/kg	0.059 U	0.059 U	0.059 U	E&E 2000
AB-5	29-Jun-00	48	52	mg/kg	0.001 U			E&E 2000
AB-6	29-Jun-00	4	8	mg/kg	0.085			E&E 2000

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
AB-6	29-Jun-00	8	12	mg/kg	0.074			E&E 2000
AB-6	29-Jun-00	12	16	mg/kg	0.056 U	0.056 U	0.056 U	E&E 2000
AB-6	29-Jun-00	16	20	mg/kg	0.108			E&E 2000
AB-6	29-Jun-00	20	24	mg/kg	0.44			E&E 2000
AB-6	29-Jun-00	24	28	mg/kg	0.061 U	0.061 U	0.061 U	E&E 2000
AB-6	29-Jun-00	28	32	mg/kg	0.62			E&E 2000
AB-6	29-Jun-00	32	36	mg/kg	0.62			E&E 2000
AB-6	29-Jun-00	36	40	mg/kg	0.6			E&E 2000
AB-6	29-Jun-00	40	44	mg/kg	0.38			E&E 2000
AB-6	29-Jun-00	44	48	mg/kg	4.8	0.072 U	0.072 U	E&E 2000
AB-6	29-Jun-00	48	52	mg/kg	0.055			E&E 2000
AB-7	01-Jul-00	4	8	mg/kg	0.001 U			E&E 2000
AB-7	01-Jul-00	8	12	mg/kg	0.015			E&E 2000
AB-7	01-Jul-00	12	16	mg/kg	0.073			E&E 2000
AB-7	01-Jul-00	16	20	mg/kg	0.057 U	0.057 U	0.057 U	E&E 2000
AB-7	01-Jul-00	20	24	mg/kg	0.01 U			E&E 2000
AB-7	01-Jul-00	24	28	mg/kg	0.069 U	0.069 U	0.069 U	E&E 2000
AB-7	01-Jul-00	28	32	mg/kg	0.004 U			E&E 2000
AB-7	01-Jul-00	32	36	mg/kg	0.001 U			E&E 2000
AB-7	01-Jul-00	36	40	mg/kg	0.0012 U			E&E 2000
AB-7	01-Jul-00	40	44	mg/kg	0.059 U	0.059 U	0.059 U	E&E 2000
AB-8	29-Jun-00	4	8	mg/kg	0.0081 U			E&E 2000
AB-8	29-Jun-00	8	12	mg/kg	0.094	0.064 U	0.064 U	E&E 2000
AB-8	29-Jun-00	12	16	mg/kg	0.56			E&E 2000
AB-8	29-Jun-00	16	20	mg/kg	5.1			E&E 2000
AB-8	29-Jun-00	20	24	mg/kg	4.6			E&E 2000
AB-8	29-Jun-00	24	28	mg/kg	0.78			E&E 2000
AB-8	29-Jun-00	28	32	mg/kg	0.015			E&E 2000
AB-8	01-Jul-00	32	36	mg/kg	0.059 U	0.059 U	0.059 U	E&E 2000
AB-8	01-Jul-00	36	40	mg/kg	0.047			E&E 2000
AB-8	01-Jul-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	E&E 2000
AB-8	01-Jul-00	44	48	mg/kg	0.014			E&E 2000
AB-9	30-Jun-00	4	8	mg/kg	0.001 U			E&E 2000
AB-9	30-Jun-00	8	12	mg/kg	0.001 U			E&E 2000
AB-9	30-Jun-00	12	16	mg/kg	0.066 U	0.066 U	0.066 U	E&E 2000
AB-9	30-Jun-00	16	20	mg/kg	0.019			E&E 2000
AB-9	30-Jun-00	20	24	mg/kg	0.019			E&E 2000
AB-9	30-Jun-00	24	28	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-9	30-Jun-00	28	32	mg/kg	0.045			E&E 2000
AB-9	30-Jun-00	32	36	mg/kg	0.032			E&E 2000
AB-9	30-Jun-00	36	40	mg/kg	0.041			E&E 2000
AB-9	30-Jun-00	40	44	mg/kg	0.065 U	0.065 U	0.065 U	E&E 2000
AB-10	30-Jun-00	4	8	mg/kg	0.001 U			E&E 2000
AB-10	30-Jun-00	8	12	mg/kg	0.001 U			E&E 2000
AB-10	30-Jun-00	12	16	mg/kg	0.001 U			E&E 2000
AB-10	30-Jun-00	16	20	mg/kg	0.014			E&E 2000
AB-10	30-Jun-00	20	24	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-10	30-Jun-00	24	28	mg/kg	0.17			E&E 2000
AB-10	30-Jun-00	28	32	mg/kg	0.059			E&E 2000
AB-10	30-Jun-00	32	36	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
AB-10	30-Jun-00	40	44	mg/kg	0.058 U	0.058 U	0.058 U	E&E 2000
AB-10	30-Jun-00	44	48	mg/kg	0.036			E&E 2000
AB-11	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	E&E 2000
AB-11	24-Aug-00	15	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	E&E 2000
AB-11	24-Aug-00	25	35	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	E&E 2000
AB-650	16-Oct-03	2.5	2.5	mg/kg	0.0059 U			URS 2004
AB-650	16-Oct-03	11	11	mg/kg	1.01			URS 2004
AB-650	16-Oct-03	21	21	mg/kg	136			URS 2004
AB-650	16-Oct-03	31	31	mg/kg	0.64			URS 2004
AB-650	16-Oct-03	32	32	mg/kg	0.0296			URS 2004
AB-650	16-Oct-03	33.5	33.5	mg/kg	0.165			URS 2004

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
AB-650	16-Oct-03	35	35	mg/kg	0.247			URS 2004
AB-650	16-Oct-03	37	37	mg/kg	0.0846			URS 2004
AB-650	16-Oct-03	38.5	38.5	mg/kg	0.0463			URS 2004
AB-650	16-Oct-03	41	41	mg/kg	0.0357			URS 2004
AB-650	17-Oct-03	43	43	mg/kg	0.127			URS 2004
AB-650	17-Oct-03	45	45	mg/kg	0.0148 U			URS 2004
AB-650	17-Oct-03	47	47	mg/kg	0.017 U			URS 2004
AB-650	17-Oct-03	48	48	mg/kg	0.0242 U			URS 2004
AB-650	17-Oct-03	49	49	mg/kg	0.0478 U			URS 2004
AB-651	14-Oct-03	2	2	mg/kg	0.0057 U			URS 2004
AB-651	14-Oct-03	11	11	mg/kg	0.0077 U			URS 2004
AB-651	14-Oct-03	21	21	mg/kg	0.0041 U			URS 2004
AB-651	14-Oct-03	31	31	mg/kg	0.004 U			URS 2004
AB-651	14-Oct-03	32.5	32.5	mg/kg	0.0042 U			URS 2004
AB-651	14-Oct-03	35	35	mg/kg	0.004 U			URS 2004
AB-651	14-Oct-03	37	37	mg/kg	0.0043 U			URS 2004
AB-651	14-Oct-03	39	39	mg/kg	0.0043 U			URS 2004
AB-651	14-Oct-03	40	40	mg/kg	0.0048 U			URS 2004
AB-651	14-Oct-03	42	42	mg/kg	0.0042 U			URS 2004
AB-651	15-Oct-03	43	43	mg/kg	0.0025 U			URS 2004
AB-651	15-Oct-03	45	45	mg/kg	0.0033 U			URS 2004
AB-651	15-Oct-03	46.5	46.5	mg/kg	0.0031 U			URS 2004
AB-651	15-Oct-03	47.5	47.5	mg/kg	0.0068 U			URS 2004
AB-652	19-Nov-03	16	16	mg/kg	0.0114 U			URS 2004
AB-652	19-Nov-03	18.25	18.25	mg/kg	0.909			URS 2004
AB-652	19-Nov-03	19	19	mg/kg	0.805			URS 2004
AB-652	19-Nov-03	25.25	25.25	mg/kg	0.664			URS 2004
AB-652	19-Nov-03	26	26	mg/kg	0.845			URS 2004
AB-652	19-Nov-03	30.5	30.5	mg/kg	0.568			URS 2004
AB-652	19-Nov-03	32	32	mg/kg	0.802			URS 2004
AB-652	19-Nov-03	33	33	mg/kg	0.518			URS 2004
AB-652	19-Nov-03	34	34	mg/kg	0.872			URS 2004
AB-652	19-Nov-03	36	36	mg/kg	0.738			URS 2004
AB-652	19-Nov-03	38	38	mg/kg	0.605			URS 2004
AB-652	19-Nov-03	39	39	mg/kg	0.333			URS 2004
AB-652	19-Nov-03	41	41	mg/kg	0.571			URS 2004
AB-652	19-Nov-03	43	43	mg/kg	0.463			URS 2004
AB-652	19-Nov-03	43.5	43.5	mg/kg	0.291			URS 2004
AB-652	19-Nov-03	46	46	mg/kg	0.0357			URS 2004
AB-652	19-Nov-03	47	47	mg/kg	0.0602			URS 2004
AB-652	19-Nov-03	48.5	48.5	mg/kg	0.0125 U			URS 2004
B21	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
B21	27-Apr-98	8	8	mg/kg	0.34	0.05 U	0.05 U	Ecology 1999a
B22	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
B22	27-Apr-98	8	8	mg/kg	5.24	0.05 U	0.05 U	Ecology 1999a
B23	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
B24	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
B25	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
B26	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
B27	27-Apr-98	4	4	mg/kg	0.05 U	0.05 U	0.05 U	Ecology 1999a
CB-1	14-Apr-04	0.67	1	mg/kg	0.0015 U	0.0015 U	0.0015 U	Farallon 2004
CB-2	14-Apr-04	0.67	1	mg/kg	0.0014 U	0.0014 U	0.0014 U	Farallon 2004
DB-1	14-Apr-04	0.67	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
EX	15-Sep-99	9	9	mg/kg	0.77	0.06	0.05 U	GeoEngineers 2001
EX	15-Sep-99	9	9	mg/kg	17	1.1	0.46	GeoEngineers 2001
EX	15-Sep-99	10	10	mg/kg	0.53	0.05 U	0.11	GeoEngineers 2001
EX	22-Sep-99	10	10	mg/kg	140	3.9	4.1	GeoEngineers 2001
EX	22-Sep-99	10	10	mg/kg	190	4.7	7.8	GeoEngineers 2001
EX	24-Sep-99	12	12	mg/kg	1.39	0.09	3.69	GeoEngineers 2001
EX	24-Sep-99	14	14	mg/kg	322	101	71	GeoEngineers 2001
EX	24-Sep-99	16	16	mg/kg	3.58	0.53	0.69	GeoEngineers 2001

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
EX	28-Sep-99	18	18	mg/kg	2.87	0.31	1.69	GeoEngineers 2001
EX-01	28-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-01	28-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-02	28-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-02	28-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.81	GeoEngineers 2001
EX-03	28-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-03	28-Sep-99	9	9	mg/kg	0.05 U	0.05 U	1.06	GeoEngineers 2001
EX-04	22-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.18	GeoEngineers 2001
EX-04	22-Sep-99	9	9	mg/kg	0.05 U	0.05 U	1.6	GeoEngineers 2001
EX-05	22-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-05	22-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.06	GeoEngineers 2001
EX-06	22-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-06	22-Sep-99	9	9	mg/kg	0.33	0.05 U	0.17	GeoEngineers 2001
EX-07	16-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-08	16-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-09	16-Sep-99	12	12	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-10	15-Sep-99	4	4	mg/kg	0.05	0.05 U	0.05 U	GeoEngineers 2001
EX-11	15-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-12	15-Sep-99	4	4	mg/kg	0.28	0.05 U	0.05 U	GeoEngineers 2001
EX-13	22-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-13	22-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-14	22-Sep-99	4	4	mg/kg	0.1	0.05 U	0.16	GeoEngineers 2001
EX-14	22-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.14	GeoEngineers 2001
EX-15	22-Sep-99	4	4	mg/kg	0.06	0.05 U	0.05	GeoEngineers 2001
EX-15	22-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.19	GeoEngineers 2001
EX-16	28-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-16	28-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.14	GeoEngineers 2001
EX-17	28-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-17	28-Sep-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-18	28-Sep-99	10	10	mg/kg	0.05 U	0.05 U	0.08	GeoEngineers 2001
EX-19	28-Sep-99	10	10	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-20	29-Sep-99	20	20	mg/kg	0.05 U	0.05 U	0.71	GeoEngineers 2001
EX-21	15-Sep-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
EX-22	22-Sep-99	10	10	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
Excavation	29-Sep-99			mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
GP-1	21-Jun-00	0	4	mg/kg	0.001 U			E&E 2000
GP-1	21-Jun-00	12	16	mg/kg	4.3			E&E 2000
GP-1	21-Jun-00	24	28	mg/kg	1.98			E&E 2000
GP-1	21-Jun-00	28	32	mg/kg	0.12			E&E 2000
GP-2	20-Jun-00	0	4	mg/kg	0.056 U	0.056 U	0.056 U	E&E 2000
GP-2	20-Jun-00	4	8	mg/kg	0.001 U			E&E 2000
GP-2	20-Jun-00	8	12	mg/kg	0.06 U	0.06 U	0.06 U	E&E 2000
GP-2	20-Jun-00	12	16	mg/kg	0.001 U			E&E 2000
GP-2	20-Jun-00	16	20	mg/kg	0.11 U	0.11 U	0.11 U	E&E 2000
GP-2	20-Jun-00	20	24	mg/kg	0.001 U			E&E 2000
GP-2	20-Jun-00	24	28	mg/kg	0.066 U	0.066 U	0.066 U	E&E 2000
GP-2	20-Jun-00	28	32	mg/kg	0.001 U			E&E 2000
GP-3	21-Jun-00	0	4	mg/kg	0.001 U			E&E 2000
GP-3	21-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
GP-3	21-Jun-00	8	12	mg/kg	0.001 U			E&E 2000
GP-3	21-Jun-00	16	20	mg/kg	0.1 U	0.1 U	0.1 U	E&E 2000
GP-3	21-Jun-00	20	24	mg/kg	0.001 U			E&E 2000
GP-3	21-Jun-00	24	28	mg/kg	0.001 U			E&E 2000
GP-3	21-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
GP-4	21-Jun-00	0	4	mg/kg	0.001 U			E&E 2000
GP-4	21-Jun-00	4	8	mg/kg	0.45			E&E 2000
GP-4	21-Jun-00	8	12	mg/kg	3.1			E&E 2000
GP-4	21-Jun-00	12	16	mg/kg	13 J	0.065 U	0.065 U	E&E 2000
GP-4	21-Jun-00	16	20	mg/kg	11			E&E 2000
GP-4	21-Jun-00	20	24	mg/kg	2.6			E&E 2000
GP-4	21-Jun-00	24	28	mg/kg	0.27			E&E 2000

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-4	21-Jun-00	28	30	mg/kg	0.37			E&E 2000
GP-4	21-Jun-00	30	32	mg/kg	0.62	0.064 U	0.064 U	E&E 2000
GP-102	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-103	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-104	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-105	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-106	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-107	02-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-108	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.011	E&E 2002
GP-109	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-110	30-Oct-01	0	8	mg/kg	0.043	0.014	0.007	E&E 2002
GP-111	02-Nov-01	0	8	mg/kg	0.014	0.001	0.014	E&E 2002
GP-112	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-113	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-114	30-Oct-01	0	8	mg/kg	0.001 U	0.002	0.01	E&E 2002
GP-115	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-116	30-Oct-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-117	02-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-118	31-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-119	01-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-120	31-Oct-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-121	01-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-122	31-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-123	01-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-124	31-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-125	01-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-126	31-Oct-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-127	01-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-128	31-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-129	01-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-130	31-Oct-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-131	01-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-132	31-Oct-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-134	31-Oct-01	0	8	mg/kg	0.001	0.001 U	0.001 U	E&E 2002
GP-133	01-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-136	31-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-135	31-Oct-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-137	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-138	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-139	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-140	02-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-141	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-142	05-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-142	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-144	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-145	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-146	05-Nov-01	0	8	mg/kg	0.003	0.001 U	0.001 U	E&E 2002
GP-147	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-148	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-149	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-150	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-151	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-152	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-153	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-154	05-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-155	05-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-156	08-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-157	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-158	07-Nov-01	0	8	mg/kg	0.002	0.001 U	0.001 U	E&E 2002
GP-159	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-160	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-161	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-162	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-163	07-Nov-01	0	8	mg/kg	0.11	0.001 U	0.001 U	E&E 2002
GP-164	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-165	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-166	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-167	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-168	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-169	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-170	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-171	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-172	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-173	07-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-174	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-175	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-176	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-177	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-178	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-179	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-180	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-181	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-182	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-183	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-184	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-185	06-Nov-01	0	8	mg/kg	0.025	0.001 U	0.001 U	E&E 2002
GP-186	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-187	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-188	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-189	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-190	06-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-191	08-Nov-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	E&E 2002
GP-500	18-Aug-03	2	2	mg/kg	0.0164			URS 2004
GP-500	18-Aug-03	4	4	mg/kg	1.07			URS 2004
GP-500	18-Aug-03	5.5	5.5	mg/kg	32.1			URS 2004
GP-500	18-Aug-03	14	14	mg/kg	12.3			URS 2004
GP-500	18-Aug-03	19	19	mg/kg	4.6			URS 2004
GP-500	18-Aug-03	22	22	mg/kg	3.85			URS 2004
GP-500	18-Aug-03	27	27	mg/kg	15.2			URS 2004
GP-501	19-Aug-03	2	2	mg/kg	0.823			URS 2004
GP-501	19-Aug-03	4	4	mg/kg	2.63			URS 2004
GP-501	19-Aug-03	5	5	mg/kg	678			URS 2004
GP-501	19-Aug-03	6.5	6.5	mg/kg	160			URS 2004
GP-501	19-Aug-03	12	12	mg/kg	858			URS 2004
GP-501	19-Aug-03	14	14	mg/kg	23.3			URS 2004
GP-501	19-Aug-03	21	21	mg/kg	10.3			URS 2004
GP-501	19-Aug-03	23	23	mg/kg	12.6			URS 2004
GP-501	19-Aug-03	28	28	mg/kg	0.847			URS 2004
GP-501	19-Aug-03	30	30	mg/kg	1.4			URS 2004
GP-502	20-Aug-03	2	2	mg/kg	0.0759			URS 2004

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-502	20-Aug-03	4	4	mg/kg	0.0716			URS 2004
GP-502	20-Aug-03	6.75	6.75	mg/kg	110			URS 2004
GP-502	20-Aug-03	8	8	mg/kg	9.55			URS 2004
GP-502	20-Aug-03	12	12	mg/kg	53.4			URS 2004
GP-502	20-Aug-03	14	14	mg/kg	155			URS 2004
GP-502	20-Aug-03	16	16	mg/kg	972			URS 2004
GP-502	20-Aug-03	22	22	mg/kg	12			URS 2004
GP-502	20-Aug-03	24	24	mg/kg	3.66			URS 2004
GP-502	20-Aug-03	28	28	mg/kg	3220			URS 2004
GP-502	20-Aug-03	30	30	mg/kg	756			URS 2004
GP-503	21-Aug-03	2	2	mg/kg	0.0701			URS 2004
GP-503	21-Aug-03	4	4	mg/kg	1.27			URS 2004
GP-503	21-Aug-03	6	6	mg/kg	5.73			URS 2004
GP-503	21-Aug-03	8	8	mg/kg	3.59			URS 2004
GP-503	21-Aug-03	12	12	mg/kg	5.09			URS 2004
GP-503	21-Aug-03	14	14	mg/kg	15.2			URS 2004
GP-503	21-Aug-03	18	18	mg/kg	22.3			URS 2004
GP-503	21-Aug-03	20	20	mg/kg	17			URS 2004
GP-503	21-Aug-03	22	22	mg/kg	14.5			URS 2004
GP-503	21-Aug-03	24	24	mg/kg	22.2			URS 2004
GP-503	21-Aug-03	28	28	mg/kg	151			URS 2004
GP-503	21-Aug-03	30	30	mg/kg	14.2			URS 2004
GP-504	21-Aug-03	2	2	mg/kg	0.0272			URS 2004
GP-504	21-Aug-03	4	4	mg/kg	0.0163 U			URS 2004
GP-504	21-Aug-03	6	6	mg/kg	0.116			URS 2004
GP-504	21-Aug-03	8	8	mg/kg	2.29			URS 2004
GP-504	22-Aug-03	12	12	mg/kg	0.363			URS 2004
GP-504	22-Aug-03	14	14	mg/kg	0.0293			URS 2004
GP-504	22-Aug-03	18	18	mg/kg	0.0187 U			URS 2004
GP-504	22-Aug-03	20	20	mg/kg	0.0284			URS 2004
GP-504	22-Aug-03	23.5	23.5	mg/kg	0.0189 U			URS 2004
GP-504	22-Aug-03	21.75	21.75	mg/kg	0.0156 U			URS 2004
GP-504	22-Aug-03	27	27	mg/kg	0.0123 U			URS 2004
GP-504	22-Aug-03	29	29	mg/kg	0.0078 U			URS 2004
GP-505	25-Aug-03	3	3	mg/kg	0.0133 U			URS 2004
GP-505	25-Aug-03	4	4	mg/kg	0.0307 U			URS 2004
GP-505	25-Aug-03	6	6	mg/kg	0.0242 U			URS 2004
GP-505	25-Aug-03	8	8	mg/kg	0.205			URS 2004
GP-505	25-Aug-03	10.5	10.5	mg/kg	1.97			URS 2004
GP-505	25-Aug-03	12	12	mg/kg	0.915			URS 2004
GP-505	25-Aug-03	17	17	mg/kg	0.128			URS 2004
GP-505	25-Aug-03	19	19	mg/kg	0.812			URS 2004
GP-505	25-Aug-03	21	21	mg/kg	0.988			URS 2004
GP-505	25-Aug-03	23.5	23.5	mg/kg	0.767			URS 2004
GP-505	25-Aug-03	26	26	mg/kg	0.488			URS 2004
GP-505	25-Aug-03	27	27	mg/kg	0.505			URS 2004
GP-506	26-Aug-03	5	5	mg/kg	0.0246 U			URS 2004
GP-506	26-Aug-03	7.5	7.5	mg/kg	0.0829			URS 2004
GP-506	26-Aug-03	10.5	10.5	mg/kg	2.65			URS 2004
GP-506	26-Aug-03	11.75	11.75	mg/kg	9.67			URS 2004
GP-506	26-Aug-03	14.5	14.5	mg/kg	2.47			URS 2004
GP-506	26-Aug-03	17	17	mg/kg	7.75			URS 2004
GP-506	03-Sep-03	19	19	mg/kg	8.43			URS 2004
GP-506	03-Sep-03	21.5	21.5	mg/kg	8.57			URS 2004
GP-507	03-Sep-03	3	3	mg/kg	0.0233 U			URS 2004
GP-507	03-Sep-03	7.5	7.5	mg/kg	0.239			URS 2004
GP-507	03-Sep-03	9.5	9.5	mg/kg	0.129			URS 2004
GP-507	03-Sep-03	11	11	mg/kg	0.277			URS 2004
GP-507	03-Sep-03	15	15	mg/kg	1.21			URS 2004
GP-507	03-Sep-03	17	17	mg/kg	1.23			URS 2004
GP-507	03-Sep-03	19	19	mg/kg	4.63			URS 2004

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-507	03-Sep-03	21	21	mg/kg	2.93			URS 2004
GP-507	03-Sep-03	25	25	mg/kg	1.34			URS 2004
GP-507	03-Sep-03	28	28	mg/kg	0.968			URS 2004
GP-508	03-Sep-03	4	4	mg/kg	0.0199 U			URS 2004
GP-508	03-Sep-03	8	8	mg/kg	4.5			URS 2004
GP-508	03-Sep-03	10	10	mg/kg	2.6			URS 2004
GP-508	05-Sep-03	12.5	12.5	mg/kg	5.97			URS 2004
GP-508	05-Sep-03	16	16	mg/kg	1.454			URS 2004
GP-508	05-Sep-03	19	19	mg/kg	6.16			URS 2004
GP-508	05-Sep-03	21.5	21.5	mg/kg	3.74			URS 2004
GP-508	05-Sep-03	26.5	26.5	mg/kg	0.525			URS 2004
GP-508	05-Sep-03	28	28	mg/kg	0.578			URS 2004
GP-509	05-Sep-03	4	4	mg/kg	0.0171 U			URS 2004
GP-509	05-Sep-03	6.5	6.5	mg/kg	0.0194 U			URS 2004
GP-509	05-Sep-03	8	8	mg/kg	0.0199 U			URS 2004
GP-509	05-Sep-03	9	9	mg/kg	0.0188 U			URS 2004
GP-509	05-Sep-03	11.5	11.5	mg/kg	0.0194 U			URS 2004
GP-509	05-Sep-03	13	13	mg/kg	0.0222 U			URS 2004
GP-509	05-Sep-03	15.5	15.5	mg/kg	0.0225 U			URS 2004
GP-509	05-Sep-03	18.5	18.5	mg/kg	0.0128 U			URS 2004
GP-509	08-Sep-03	25	25	mg/kg	0.0177 U			URS 2004
GP-509	08-Sep-03	27	27	mg/kg	0.0212 U			URS 2004
GP-510	08-Sep-03	4	4	mg/kg	0.371			URS 2004
GP-510	08-Sep-03	5.5	5.5	mg/kg	0.355			URS 2004
GP-510	08-Sep-03	7.5	7.5	mg/kg	0.403			URS 2004
GP-510	08-Sep-03	9	9	mg/kg	0.402			URS 2004
GP-510	08-Sep-03	11	11	mg/kg	0.447			URS 2004
GP-510	08-Sep-03	14.5	14.5	mg/kg	6.48			URS 2004
GP-510	08-Sep-03	17.5	17.5	mg/kg	8.43			URS 2004
GP-510	08-Sep-03	19	19	mg/kg	2.88			URS 2004
GP-510	08-Sep-03	21.5	21.5	mg/kg	2.64			URS 2004
GP-510	08-Sep-03	26	26	mg/kg	5.5			URS 2004
GP-510	08-Sep-03	27.5	27.5	mg/kg	3.74			URS 2004
GP-511	08-Sep-03	3.5	3.5	mg/kg	0.0209 U			URS 2004
GP-511	08-Sep-03	4.5	4.5	mg/kg	0.0313 U			URS 2004
GP-511	08-Sep-03	7	7	mg/kg	0.0243 U			URS 2004
GP-511	08-Sep-03	9	9	mg/kg	0.0143 U			URS 2004
GP-511	08-Sep-03	11.5	11.5	mg/kg	0.0191 U			URS 2004
GP-511	08-Sep-03	16	16	mg/kg	0.0234 U			URS 2004
GP-511	09-Sep-03	18.5	18.5	mg/kg	0.0129 U			URS 2004
GP-511	09-Sep-03	21.5	21.5	mg/kg	0.0129 U			URS 2004
GP-511	09-Sep-03	25	25	mg/kg	0.0206 U			URS 2004
GP-511	09-Sep-03	27.5	27.5	mg/kg	0.0254 U			URS 2004
GP-512	09-Sep-03	4	4	mg/kg	0.0293 U			URS 2004
GP-512	09-Sep-03	6.5	6.5	mg/kg	0.0203 U			URS 2004
GP-512	09-Sep-03	8	8	mg/kg	0.0416			URS 2004
GP-512	09-Sep-03	9	9	mg/kg	0.0295 U			URS 2004
GP-512	09-Sep-03	12	12	mg/kg	0.0555			URS 2004
GP-512	09-Sep-03	16	16	mg/kg	0.287			URS 2004
GP-512	09-Sep-03	17.5	17.5	mg/kg	0.209			URS 2004
GP-512	09-Sep-03	19	19	mg/kg	0.347			URS 2004
GP-512	09-Sep-03	21.5	21.5	mg/kg	0.212			URS 2004
GP-512	09-Sep-03	27	27	mg/kg	0.0237 U			URS 2004
GP-513	10-Sep-03	3	3	mg/kg	0.0311 U			URS 2004
GP-513	10-Sep-03	6	6	mg/kg	0.0543 U			URS 2004
GP-513	10-Sep-03	8	8	mg/kg	0.193			URS 2004
GP-513	10-Sep-03	9.5	9.5	mg/kg	0.104			URS 2004
GP-513	10-Sep-03	11.5	11.5	mg/kg	0.123			URS 2004
GP-513	10-Sep-03	15	15	mg/kg	0.107			URS 2004
GP-513	10-Sep-03	17	17	mg/kg	0.0846			URS 2004
GP-513	10-Sep-03	19	19	mg/kg	0.165			URS 2004

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-513	10-Sep-03	21.5	21.5	mg/kg	0.372			URS 2004
GP-513	10-Sep-03	25	25	mg/kg	2.2			URS 2004
GP-513	10-Sep-03	26.5	26.5	mg/kg	1.76			URS 2004
GP-514	10-Sep-03	3.5	3.5	mg/kg	0.0265 U			URS 2004
GP-514	10-Sep-03	6	6	mg/kg	0.0214 U			URS 2004
GP-514	10-Sep-03	7.5	7.5	mg/kg	0.0303 U			URS 2004
GP-514	10-Sep-03	9.5	9.5	mg/kg	0.0189 U			URS 2004
GP-514	10-Sep-03	12	12	mg/kg	0.0252 U			URS 2004
GP-514	11-Sep-03	21	21	mg/kg	0.515			URS 2004
GP-514	11-Sep-03	23.5	23.5	mg/kg	0.532			URS 2004
GP-514	11-Sep-03	28	28	mg/kg	0.392			URS 2004
GP-514	11-Sep-03	30	30	mg/kg	0.14			URS 2004
GP-515	11-Sep-03	3.5	3.5	mg/kg	0.0437 U			URS 2004
GP-515	11-Sep-03	5	5	mg/kg	0.0461 U			URS 2004
GP-515	11-Sep-03	7.5	7.5	mg/kg	0.453			URS 2004
GP-515	11-Sep-03	9.5	9.5	mg/kg	0.0723			URS 2004
GP-515	11-Sep-03	12	12	mg/kg	0.803			URS 2004
GP-515	11-Sep-03	15	15	mg/kg	0.103			URS 2004
GP-515	11-Sep-03	17.5	17.5	mg/kg	0.109			URS 2004
GP-515	11-Sep-03	19	19	mg/kg	0.107			URS 2004
GP-515	11-Sep-03	21.5	21.5	mg/kg	0.0225 U			URS 2004
GP-515	11-Sep-03	25	25	mg/kg	0.0289			URS 2004
GP-515	11-Sep-03	27.5	27.5	mg/kg	0.0755			URS 2004
GP-516	11-Sep-03	3.5	3.5	mg/kg	0.0146 U			URS 2004
GP-516	11-Sep-03	6	6	mg/kg	0.0206 U			URS 2004
GP-516	11-Sep-03	7.5	7.5	mg/kg	0.0277 U			URS 2004
GP-516	11-Sep-03	9	9	mg/kg	0.0151 U			URS 2004
GP-516	11-Sep-03	11.5	11.5	mg/kg	0.026 U			URS 2004
GP-516	11-Sep-03	15	15	mg/kg	0.024 U			URS 2004
GP-516	11-Sep-03	17.5	17.5	mg/kg	0.017 U			URS 2004
GP-516	11-Sep-03	19	19	mg/kg	0.0243 U			URS 2004
GP-516	11-Sep-03	21.5	21.5	mg/kg	0.0132 U			URS 2004
GP-516	11-Sep-03	22	22	mg/kg	0.0231 U			URS 2004
GP-516	11-Sep-03	26	26	mg/kg	0.0137 U			URS 2004
GP-516	11-Sep-03	27	27	mg/kg	0.025 U			URS 2004
GP-517	12-Sep-03	4	4	mg/kg	0.0121 U			URS 2004
GP-517	12-Sep-03	6	6	mg/kg	0.114			URS 2004
GP-517	12-Sep-03	7.5	7.5	mg/kg	0.464			URS 2004
GP-517	12-Sep-03	9	9	mg/kg	0.654			URS 2004
GP-517	12-Sep-03	11.5	11.5	mg/kg	0.845			URS 2004
GP-517	12-Sep-03	15	15	mg/kg	0.815			URS 2004
GP-517	12-Sep-03	17.5	17.5	mg/kg	1.22			URS 2004
GP-517	12-Sep-03	21	21	mg/kg	0.513			URS 2004
GP-517	12-Sep-03	23.5	23.5	mg/kg	0.879			URS 2004
GP-517	12-Sep-03	25	25	mg/kg	0.681			URS 2004
GP-517	12-Sep-03	28	28	mg/kg	0.555			URS 2004
GP-518	12-Sep-03	4	4	mg/kg	0.0066 U			URS 2004
GP-518	12-Sep-03	5	5	mg/kg	0.0111 U			URS 2004
GP-518	12-Sep-03	7.5	7.5	mg/kg	0.0087 U			URS 2004
GP-518	12-Sep-03	9	9	mg/kg	0.006 U			URS 2004
GP-518	12-Sep-03	11.5	11.5	mg/kg	0.0111 U			URS 2004
GP-518	12-Sep-03	15	15	mg/kg	0.0089 U			URS 2004
GP-518	12-Sep-03	17.5	17.5	mg/kg	0.0072 U			URS 2004
GP-518	12-Sep-03	19	19	mg/kg	0.0154 U			URS 2004
GP-518	12-Sep-03	21.5	21.5	mg/kg	0.0099 U			URS 2004
GP-518	15-Sep-03	25	25	mg/kg	0.0183 UJ			URS 2004
GP-518	15-Sep-03	27.5	27.5	mg/kg	0.0693 J			URS 2004
GP-A3	26-Jun-00	28	32	mg/kg	0.0028 U			E&E 2000
GP-A3	26-Jun-00	32	36	mg/kg	0.0018 U			E&E 2000
GP-A3	26-Jun-00	36	40	mg/kg	0.0036 U			E&E 2000
GP-A3	26-Jun-00	40	44	mg/kg	0.0019			E&E 2000

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-A3	26-Jun-00	44	48	mg/kg	0.067 U	0.067 U	0.067 U	E&E 2000
GP-A4	26-Jun-00	28	32	mg/kg	0.068			E&E 2000
GP-A4	26-Jun-00	32	36	mg/kg	0.116			E&E 2000
GP-A4	26-Jun-00	36	40	mg/kg	0.0077 U			E&E 2000
GP-A4	26-Jun-00	40	44	mg/kg	0.0074 U			E&E 2000
GP-A4	26-Jun-00	48	52	mg/kg	0.066 U	0.066 U	0.066 U	E&E 2000
MW-1	18-Feb-97	15	15	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-1	18-Feb-97	15	15	mg/kg		0.004 U	0.004 U	SAIC 1997
MW-1	18-Feb-97	35	35	mg/kg		0.004 U	0.004 U	SAIC 1997
MW-1	18-Feb-97	35	35	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-1	18-Feb-97	40	40	mg/kg		0.004 U	0.004 U	SAIC 1997
MW-1	18-Feb-97	40	40	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-1	18-Feb-97	45	45	mg/kg		0.003 U	0.003 U	SAIC 1997
MW-1	18-Feb-97	45	45	mg/kg	0.003 U	0.003 U	0.003 U	SAIC 1997
MW-2	20-Feb-97	15	15	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-2	20-Feb-97	30	30	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-2	20-Feb-97	40	40	mg/kg	0.008	0.004 U	0.004 U	SAIC 1997
MW-2	20-Feb-97	45	45	mg/kg	0.004	0.004 U	0.004 U	SAIC 1997
MW-3	18-Feb-97	20	20	mg/kg	0.003 U	0.003 U	0.003 U	SAIC 1997
MW-3	18-Feb-97	30	30	mg/kg	0.007	0.004 U	0.004 U	SAIC 1997
MW-3	18-Feb-97	35	35	mg/kg	0.021	0.004 U	0.004 U	SAIC 1997
MW-3	18-Feb-97	46	46	mg/kg	0.003 J	0.004 U	0.004 U	SAIC 1997
MW-4	18-Feb-97	10	10	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-4	18-Feb-97	30	30	mg/kg	0.002 J	0.004 U	0.004 U	SAIC 1997
MW-4	18-Feb-97	35	35	mg/kg	0.021	0.004 U	0.004 U	SAIC 1997
MW-4	18-Feb-97	40	40	mg/kg	0.01	0.004 U	0.004 U	SAIC 1997
MW-5	28-Apr-97	25	25	mg/kg	0.023	0.004 U	0.004 U	SAIC 1997
MW-5	28-Apr-97	35	35	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-5	28-Apr-97	40	40	mg/kg	0.003 U	0.003 U	0.003 U	SAIC 1997
MW-5	28-Apr-97	45	45	mg/kg	0.003 U	0.003 U	0.003 U	SAIC 1997
MW-6	30-Apr-97	25	25	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-6	30-Apr-97	30	30	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-6	30-Apr-97	35	35	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-6	30-Apr-97	45	45	mg/kg	0.006	0.003 U	0.003 U	SAIC 1997
MW-7	02-May-97	30	30	mg/kg	0.003 U	0.003 U	0.003 U	SAIC 1997
MW-7	02-May-97	35	35	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-7	02-May-97	40	40	mg/kg	0.003 U	0.003 U	0.003 U	SAIC 1997
MW-8	06-May-97	0	0	mg/kg	0.004 U	0.004 U	0.004 U	SAIC 1997
MW-8	06-May-97	5	5	mg/kg	0.001 J	0.004 U	0.004 U	SAIC 1997
MW-8	06-May-97	35	35	mg/kg	0.006 U	0.006 U	0.006 U	SAIC 1997
MW-8	06-May-97	40	40	mg/kg	0.007	0.003 U	0.003 U	SAIC 1997
MW-9	25-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	E&E 2000
MW-9	25-Aug-00	15	25	mg/kg	0.062 U	0.062 U	0.062 U	E&E 2000
MW-9	25-Aug-00	25	30	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	E&E 2000
MW-9	25-Aug-00	30	35	mg/kg	0.085	0.064 UJ	0.064 UJ	E&E 2000
MW-9	25-Aug-00	35	40	mg/kg	36 J	0.062 UJ	0.062 UJ	E&E 2000
MW-9	25-Aug-00	40	45	mg/kg	53 J	0.063 UJ	0.063 UJ	E&E 2000
MW-9	25-Aug-00	45	50	mg/kg	1.1J	0.067 UJ	0.067 UJ	E&E 2000
MW-10	26-Aug-00	10	15	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	E&E 2000
MW-10	26-Aug-00	15	20	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	E&E 2000
MW-10	26-Aug-00	20	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	E&E 2000
MW-10	26-Aug-00	25	30	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	E&E 2000
MW-10	26-Aug-00	30	35	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	E&E 2000
MW-10	26-Aug-00	35	40	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	E&E 2000
MW-10	26-Aug-00	40	45	mg/kg	0.069 UJ	0.069 UJ	0.069 UJ	E&E 2000
MW-11 SB05	29-Jan-01	5	6.5	mg/kg	66 UJ	66 U	66 U	E&E 2001
MW-11 SB15	29-Jan-01	15	16.5	mg/kg	64 UJ	64 U	64 U	E&E 2001
MW-11 SB50	29-Jan-01	50	51.5	mg/kg	68 UJ	68 U	68 U	E&E 2001
MW-12 SB05	30-Jan-01	5	6.5	mg/kg	64 UJ	64 U	64 U	E&E 2001
MW-12 SB15	30-Jan-01	15	16.5	mg/kg	65 UJ	65 U	65 U	E&E 2001
MW-12 SB49	30-Jan-01	49	50.5	mg/kg	65 UJ	65 U	65 U	E&E 2001

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-13 SB20	20-Jan-01	20	21.5	mg/kg	66 UJ	0 U	0 U	E&E 2001
MW-13 SB15	30-Jan-01	15	16.5	mg/kg	60 UJ	0 U	0 U	E&E 2001
MW-13 SB49	30-Jan-01	49	50.5	mg/kg	67 UJ	0 U	0 U	E&E 2001
MW-14 SB20	31-Jan-01	20	21.5	mg/kg	61 UJ	0 U	0 U	E&E 2001
MW-14 SB35	31-Jan-01	35	36.5	mg/kg	60 UJ	0 U	0 U	E&E 2001
MW-14 SB49	31-Jan-01	48.5	50	mg/kg	70 UJ	0 U	0 U	E&E 2001
MW-15 SB15	31-Jan-01	15	16.5	mg/kg	59 UJ	0 U	0 U	E&E 2001
MW-15 SB25	31-Jan-01	25	26.5	mg/kg	64 UJ	0 U	0 U	E&E 2001
MW-15 SB49	31-Jan-01	49	50.5	mg/kg	71 UJ	0 U	0 U	E&E 2001
MW-16 SB15	01-Feb-01	15	16.5	mg/kg	66 UJ	0 U	0 U	E&E 2001
MW-16 SB25	01-Feb-01	25	26.5	mg/kg	62 UJ	0 U	0 U	E&E 2001
MW-16 SB48	01-Feb-01	48	49.5	mg/kg	63 UJ	0 U	0 U	E&E 2001
MW-18	18-Jul-02	5	6.5	mg/kg	0.0018	0.0013 U	0.0013 U	Farallon 2003
MW-18	18-Jul-02	10	11.5	mg/kg	0.0026	0.0012 U	0.0015	Farallon 2003
MW-18	18-Jul-02	44	44.5	mg/kg	0.003	0.0012 U	0.0012 U	Farallon 2003
MW-19	25-Jul-02	5	6.5	mg/kg	0.0014 U	0.0014 U	0.0014 U	Farallon 2003
MW-19	25-Jul-02	10	11.5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
MW-19	25-Jul-02	43	44.5	mg/kg	0.011	0.0013 U	0.0013 U	Farallon 2003
MW-21	22-Jul-02	5	6.5	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
MW-21	22-Jul-02	10	11.5	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
MW-21	22-Jul-02	43	44.5	mg/kg	0.015	0.0014 U	0.0014 U	Farallon 2003
MW-23	22-Jul-02	5	6.5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
MW-23	22-Jul-02	10	11	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
MW-23	22-Jul-02	45	46	mg/kg	0.026	0.0015 U	0.0015 U	Farallon 2003
MW-24	22-Jul-02	5	6.5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
MW-24	22-Jul-02	10	11	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
MW-24	22-Jul-02	25	26.5	mg/kg	0.011	0.0013 U	0.0013 U	Farallon 2003
MW-24	22-Jul-02	44.5	45	mg/kg	0.016	0.0013 U	0.0013 U	Farallon 2003
MW-25	22-Jul-02	5	6.5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
MW-25	22-Jul-02	10	11.5	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
MW-25	22-Jul-02	39	40	mg/kg	0.13	0.0013 U	0.0013 U	Farallon 2003
MW-600	03-Nov-03	16	16	mg/kg	4.97			URS 2004
MW-600	03-Nov-03	25	25	mg/kg	3.41			URS 2004
MW-600	03-Nov-03	29	29	mg/kg	1.15			URS 2004
MW-600	03-Nov-03	31	31	mg/kg	0.0131			URS 2004
MW-600	03-Nov-03	32	32	mg/kg	0.0443			URS 2004
MW-600	03-Nov-03	34	34	mg/kg	0.162			URS 2004
MW-600	04-Nov-03	37	37	mg/kg	0.0795			URS 2004
MW-600	04-Nov-03	38.5	38.5	mg/kg	0.565			URS 2004
MW-600	04-Nov-03	42	42	mg/kg	0.0472			URS 2004
MW-600	04-Nov-03	44	44	mg/kg	0.0884			URS 2004
MW-600	05-Nov-03	47.5	47.5	mg/kg	0.0064 U			URS 2004
MW-600	05-Nov-03	49.5	49.5	mg/kg	0.0119 U			URS 2004
MW-601	10-Nov-03	5.5	6.5	mg/kg	0.0137			URS 2004
MW-601	10-Nov-03	15	16.5	mg/kg	13.9			URS 2004
MW-601	10-Nov-03	28	29.5	mg/kg	1.99			URS 2004
MW-601	10-Nov-03	31	31	mg/kg	0.473			URS 2004
MW-601	10-Nov-03	32	32	mg/kg	0.0218			URS 2004
MW-601	10-Nov-03	34	34	mg/kg	2.33			URS 2004
MW-601	10-Nov-03	37.5	37.5	mg/kg	0.082			URS 2004
MW-601	10-Nov-03	39	39	mg/kg	1.17			URS 2004
MW-601	10-Nov-03	42	42	mg/kg	0.947			URS 2004
MW-601	10-Nov-03	43	43	mg/kg	0.272			URS 2004
MW-601	10-Nov-03	45.5	45.5	mg/kg	0.416			URS 2004
MW-601	10-Nov-03	46.5	46.5	mg/kg	0.0147 U			URS 2004
MW-601	10-Nov-03	47.5	47.5	mg/kg	0.0101 U			URS 2004
MW-602	11-Nov-03	6	6	mg/kg	14.7			URS 2004
MW-602	11-Nov-03	12.5	12.5	mg/kg	7.62			URS 2004
MW-602	12-Nov-03	15	15	mg/kg	399			URS 2004
MW-602	12-Nov-03	30	30	mg/kg	25.2			URS 2004
MW-602	12-Nov-03	32.5	32.5	mg/kg	0.215			URS 2004

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-602	12-Nov-03	34	34	mg/kg	3.83			URS 2004
MW-602	12-Nov-03	37	37	mg/kg	5.42			URS 2004
MW-602	12-Nov-03	39	39	mg/kg	1.12			URS 2004
MW-602	12-Nov-03	47	47	mg/kg	0.0077 U			URS 2004
MW-602	12-Nov-03	48	48	mg/kg	0.0161 U			URS 2004
MW-603	13-Nov-03	5	5	mg/kg	11.6			URS 2004
MW-603	13-Nov-03	15.25	15.25	mg/kg	16.3			URS 2004
MW-603	14-Nov-03	25.5	25.5	mg/kg	7.24			URS 2004
MW-603	14-Nov-03	30.5	30.5	mg/kg	0.648			URS 2004
MW-603	14-Nov-03	32.5	32.5	mg/kg	0.795			URS 2004
MW-603	14-Nov-03	34	34	mg/kg	3.26			URS 2004
MW-603	15-Nov-03	35.5	35.5	mg/kg	0.404			URS 2004
MW-603	15-Nov-03	37	37	mg/kg	1.01			URS 2004
MW-603	15-Nov-03	37.5	37.5	mg/kg	1.27			URS 2004
MW-603	15-Nov-03	39	39	mg/kg	1.76			URS 2004
MW-603	15-Nov-03	41.5	41.5	mg/kg	1.99			URS 2004
MW-603	15-Nov-03	43	43	mg/kg	0.856			URS 2004
MW-603	15-Nov-03	44	44	mg/kg	0.921			URS 2004
MW-603	17-Nov-03	45	45	mg/kg	1.76			URS 2004
MW-603	17-Nov-03	45.5	45.5	mg/kg	0.0285			URS 2004
MW-603	17-Nov-03	46.5	46.5	mg/kg	0.264			URS 2004
MW-603	17-Nov-03	47	47.5	mg/kg	0.149			URS 2004
MW-604	27-Oct-03	16	16	mg/kg	11.3			URS 2004
MW-604	27-Oct-03	25	25	mg/kg	2.99			URS 2004
MW-604	28-Oct-03	28	28	mg/kg	3.22			URS 2004
MW-604	28-Oct-03	31	31	mg/kg	3.14			URS 2004
MW-604	28-Oct-03	32	32	mg/kg	0.842			URS 2004
MW-604	28-Oct-03	34	34	mg/kg	0.0334			URS 2004
MW-604	28-Oct-03	37	37	mg/kg	0.113			URS 2004
MW-604	28-Oct-03	38	38	mg/kg	0.238			URS 2004
MW-604	28-Oct-03	42	42	mg/kg	0.0166			URS 2004
MW-604	28-Oct-03	43	43	mg/kg	0.0256			URS 2004
MW-604	29-Oct-03	47	47	mg/kg	0.112			URS 2004
MW-604	29-Oct-03	48.5	48.5	mg/kg	0.0801			URS 2004
MW-604	29-Oct-03	49	49	mg/kg	0.0342			URS 2004
MW-604	29-Oct-03	49.5	49.5	mg/kg	0.0256 U			URS 2004
MW-604	29-Oct-03	51	51	mg/kg	0.0613			URS 2004
MW-605	17-Nov-03	12.75	12.75	mg/kg	2.44			URS 2004
MW-605	17-Nov-03	25.75	25.75	mg/kg	2.86			URS 2004
MW-605	17-Nov-03	28.75	28.75	mg/kg	0.403			URS 2004
MW-605	17-Nov-03	30.5	30.5	mg/kg	0.368			URS 2004
MW-605	17-Nov-03	31.75	31.75	mg/kg	1.32			URS 2004
MW-605	17-Nov-03	32.5	32.5	mg/kg	1.03			URS 2004
MW-605	17-Nov-03	33.5	33.5	mg/kg	0.701			URS 2004
MW-605	17-Nov-03	34.5	34.5	mg/kg	0.536			URS 2004
MW-605	17-Nov-03	36.25	36.25	mg/kg	0.408			URS 2004
MW-605	17-Nov-03	37.25	37.25	mg/kg	0.224			URS 2004
MW-605	17-Nov-03	40.5	40.5	mg/kg	0.0532			URS 2004
MW-605	17-Nov-03	42	42	mg/kg	0.46			URS 2004
MW-605	18-Nov-03	44.5	44.5	mg/kg	0.208			URS 2004
MW-605	18-Nov-03	46.5	46.5	mg/kg	0.107			URS 2004
MW-605	18-Nov-03	47.5	47.5	mg/kg	0.104			URS 2004
MW-605	18-Nov-03	48.25	48.25	mg/kg	0.0173 U			URS 2004
MW-605	18-Nov-03	48.5	48.5	mg/kg	0.0474			URS 2004
MW-605	18-Nov-03	50	50	mg/kg	0.0112 U			URS 2004
MW-606	30-Oct-03	31	31	mg/kg	0.0144 U			URS 2004
MW-606	30-Oct-03	32	32	mg/kg	0.0172 U			URS 2004
MW-606	30-Oct-03	35.5	35.5	mg/kg	0.0242			URS 2004
MW-606	30-Oct-03	36.5	36.5	mg/kg	0.0246			URS 2004
MW-606	30-Oct-03	37	37	mg/kg	0.0134 U			URS 2004
MW-606	30-Oct-03	38.5	38.5	mg/kg	0.0116			URS 2004

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-606	30-Oct-03	42	42	mg/kg	0.0098 U			URS 2004
MW-606	30-Oct-03	44	44	mg/kg	0.0124 U			URS 2004
MW-606	30-Oct-03	47.5	47.5	mg/kg	0.0348 U			URS 2004
MW-606	31-Oct-03	49.5	49.5	mg/kg	0.0089 U			URS 2004
MW-607	22-Oct-03	31	31	mg/kg	0.356			URS 2004
MW-607	22-Oct-03	32.5	32.5	mg/kg	0.213			URS 2004
MW-607	22-Oct-03	34	34	mg/kg	0.143			URS 2004
MW-607	22-Oct-03	35	35	mg/kg	0.071			URS 2004
MW-607	22-Oct-03	37	37	mg/kg	0.0247			URS 2004
MW-607	22-Oct-03	40	40	mg/kg	0.0218 U			URS 2004
MW-607	22-Oct-03	42	42	mg/kg	0.0134			URS 2004
MW-607	22-Oct-03	43	43	mg/kg	0.0156 U			URS 2004
MW-607	22-Oct-03	47	47	mg/kg	0.0154 U			URS 2004
MW-607	22-Oct-03	47.5	47.5	mg/kg	0.0162 U			URS 2004
MW-607	22-Oct-03	49	49	mg/kg	0.0206 U			URS 2004
MW-608	23-Oct-03	31	31	mg/kg	0.398			URS 2004
MW-608	23-Oct-03	32	32	mg/kg	0.277			URS 2004
MW-608	23-Oct-03	33.5	33.5	mg/kg	0.246			URS 2004
MW-608	24-Oct-03	37	37	mg/kg	0.142			URS 2004
MW-608	24-Oct-03	38	38	mg/kg	0.197			URS 2004
MW-608	24-Oct-03	41.5	41.5	mg/kg	0.287			URS 2004
MW-608	24-Oct-03	43	43	mg/kg	0.0677			URS 2004
MW-608	24-Oct-03	46	46	mg/kg	0.14			URS 2004
MW-608	24-Oct-03	47	47	mg/kg	0.211			URS 2004
MW-R8	24-Aug-00	0	15	mg/kg	3.3	0.062 UJ	0.062 UJ	E&E 2000
MW-R8	24-Aug-00	15	25	mg/kg	0.84	0.062 UJ	0.062 UJ	E&E 2000
MW-R8	24-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	E&E 2000
MW-R9	25-Aug-00	0	15	mg/kg	0.058 UJ	0.058 UJ	0.058 UJ	E&E 2000
MW-R9	25-Aug-00	15	25	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	E&E 2000
MW-R9	25-Aug-00	25	35	mg/kg	0.12 J	0.061 UJ	0.061 UJ	E&E 2000
MW-R10	27-Aug-00	0	20	mg/kg	0.46J	0.059 UJ	0.059 UJ	E&E 2000
MW-R10	27-Aug-00	20	25	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	E&E 2000
MW-R10	27-Aug-00	25	35	mg/kg	0.24J	0.068 UJ	0.068 UJ	E&E 2000
MW-R11	27-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	E&E 2000
MW-R11	27-Aug-00	15	25	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	E&E 2000
MW-R11	27-Aug-00	25	35	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	E&E 2000
RS-1	09-Jul-02	5	5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-1	09-Jul-02	10	10	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-1	09-Jul-02	44	44	mg/kg	0.0081	0.0012 U	0.0012 U	Farallon 2003
RS-2	10-Jul-02	5	5	mg/kg	0.36 E	0.0063 U	0.0063 U	Farallon 2003
RS-2	10-Jul-02	10	10	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-2	10-Jul-02	45	45	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-5	11-Jun-02	5	5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-5	11-Jun-02	10	10	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-8	10-Jun-02	5	5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-8	10-Jun-02	10	10	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-8A	24-Jun-02	5	5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-8A	24-Jun-02	10	10	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-8A	24-Jun-02	44	44	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-9	11-Jul-02	10	10	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-9	11-Jul-02	31	31	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-9	11-Jul-02	49	49	mg/kg	0.0081	0.0012 U	0.0012 U	Farallon 2003
RS-12	12-Jul-02	5	5	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2003
RS-12	12-Jul-02	10	10	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2003
RS-12	12-Jul-02	40	40	mg/kg	0.0014	0.0011 U	0.0011 U	Farallon 2003
RS-16	01-Jul-02	43	43	mg/kg	0.16	0.0013 U	0.0013 U	Farallon 2003
RS-30	04-Sep-03	18.5	20	mg/kg	0.027	0.0011 U	0.0011 U	Farallon 2004
RS-31	03-Sep-03	14	15.5	mg/kg	1.3	0.016 U	0.016 U	Farallon 2004
RS-31	03-Sep-03	17	18.5	mg/kg	0.68	0.013 U	0.013 U	Farallon 2004
SB-1	30-Jan-98			mg/kg	0.0016U	0.0016U	0.0016U	Ecology 1999b
SB-2	30-Jan-98			mg/kg	0.0016U	0.0016U	0.0016U	Ecology 1999b

Table 2-2. Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
SB-3	30-Jan-98			mg/kg	0.0015U	0.0015U	0.0015U	Ecology 1999b
SB-4	30-Jan-98			mg/kg	0.0015U	0.0015U	0.0015U	Ecology 1999b
SB-5	30-Jan-98			mg/kg	0.0013U	0.0013U	0.0013U	Ecology 1999b
SB-6	30-Jan-98			mg/kg	0.0014U	0.0014U	0.0014U	Ecology 1999b
SP-1	12-Aug-99	2.5	2.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-1	12-Aug-99	5	5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-1	12-Aug-99	7.5	7.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-2	12-Aug-99	4	4	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-2	12-Aug-99	9.5	9.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-3	12-Aug-99	3.5	3.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-3	12-Aug-99	7.5	7.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-4	18-Aug-99	6.5	6.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-4	18-Aug-99	12	12	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-5	18-Aug-99	6	6	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-5	18-Aug-99	11.5	11.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-6	18-Aug-99	7.5	7.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-6	18-Aug-99	11.5	11.5	mg/kg	0.0505	0.05 U	0.05 U	GeoEngineers 2001
SP-7	18-Aug-99	6	6	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-7	18-Aug-99	11	11	mg/kg	0.0586	0.05 U	0.05 U	GeoEngineers 2001
SP-8	18-Aug-99	6	6	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
SP-8	18-Aug-99	11	11	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-5	19-Aug-99	1.5	1.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-5	19-Aug-99	6	6	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-5	19-Aug-99	9	9	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-6	19-Aug-99	1.5	1.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-6	19-Aug-99	8	8	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-7	19-Aug-99	3	3	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001
TP-7	19-Aug-99	8.5	8.5	mg/kg	0.05 U	0.05 U	0.05 U	GeoEngineers 2001

Notes:
ft - feet
PCE - tetrachloroethene
TCE - trichloroethene
cis-1,2-DCE - cis-1,2-dichloroethene
mg/kg - milligram per kilogram
U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit
J - analyte detected but value is an estimated quantity

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
AB-1	26-Jun-00	13	17.5	ug/l	19000	500 U	500 U	E&E 2000
AB-1	26-Jun-00	25	35	ug/l	160	1 U	1 U	E&E 2000
AB-2	27-Jun-00	12	16	ug/l	26000	500 U	500 U	E&E 2000
AB-3	28-Jun-00	12	16	ug/l	47000	20U	200U	E&E 2000
AB-3	30-Jun-00	16	20	ug/l	3300 J	7	2 U	E&E 2000
AB-4	30-Jun-00	12	16	ug/l	2800	100 U	100 U	E&E 2000
AB-5	29-Jun-00	16	20	ug/l	1 U	1 U	1 U	E&E 2000
AB-5	29-Jun-00	44	48	ug/l	28	3 U	3 U	E&E 2000
AB-6	29-Jun-00	20	24	ug/l	2200J	5	2	E&E 2000
AB-6	03-Jul-00	12	16	ug/l	6400	5 J	2 J	E&E 2000
AB-7	01-Jul-00	12	16	ug/l	113	3.9	20 U	E&E 2000
AB-7	01-Jul-00	20	24	ug/l	95	13	20 U	E&E 2000
AB-8[a]	29-Jun-00	12	16	ug/l	19000	1000	500 U	E&E 2000
AB-8[b]	01-Jul-00	12	16	ug/l	23000	1200	240	E&E 2000
AB-8	01-Jul-00	16	20	ug/l	1700	66	200 U	E&E 2000
AB-9	30-Jun-00	12	16	ug/l	170	20 U	200 U	E&E 2000
AB-9	30-Jun-00	16	20	ug/l	1300	20 U	200 U	E&E 2000
AB-10	30-Jun-00	12	16	ug/l	400	20 U	200 U	E&E 2000
AB-10	30-Jun-00	20	24	ug/l	1000	20 U	200 U	E&E 2000
AB-650	16-Oct-03	34	36	ug/l	3300			URS 2004
AB-650	16-Oct-03	39	41	ug/l	660			URS 2004
AB-650	17-Oct-03	44	46	ug/l	240			URS 2004
AB-651	14-Oct-03	34	36	ug/l	5 U			URS 2004
AB-651	15-Oct-03	46	48	ug/l	5 U			URS 2004
AB-652	19-Nov-03	35	35	ug/l	5460			URS 2004
AB-652	19-Nov-03	40	40	ug/l	3230			URS 2004
AB-652	19-Nov-03	45	45	ug/l	582			URS 2004
B-01	31-Mar-98	20	20	ug/l	4000	1.1	1 U	Ecology 1999a
B-01	31-Mar-98	35	35	ug/l	4000	1 U	1 U	Ecology 1999a
B-02	31-Mar-98	20	20	ug/l	60000	17	10 U	Ecology 1999a
B-02	31-Mar-98	35	35	ug/l	1000	10 U	10 U	Ecology 1999a
B-02A	27-Apr-98	9	10	ug/l	27000	20 U	20 U	Ecology 1999a
B-02B	27-Apr-98	13	15	ug/l	30000	25	20 U	Ecology 1999a
B-02C	27-Apr-98	13	15	ug/l	57000	31	20 U	Ecology 1999a
B-02D	27-Apr-98	13	15	ug/l	34000	25	20 U	Ecology 1999a
B-03	31-Mar-98	20	20	ug/l	9.7	1 U	1 U	Ecology 1999a
B-03	31-Mar-98	30	30	ug/l	6.7 U	1 U	1 U	Ecology 1999a
B-04	31-Mar-98	15	17	ug/l	20	1 U	1 U	Ecology 1999a
B-04	01-Apr-98	28	28	ug/l	65	1 U	1 U	Ecology 1999a
B-05	01-Apr-98	20	20	ug/l	1 U	1 U	1 U	Ecology 1999a
B-05	01-Apr-98	28	28	ug/l	1 U	1 U	1 U	Ecology 1999a
B-06	01-Apr-98	20	20	ug/l	1 U	1 U	1 U	Ecology 1999a
B-06	01-Apr-98	35	35	ug/l	140	1 U	1 U	Ecology 1999a
B-07	01-Apr-98	20	20	ug/l	1 U	1 U	1 U	Ecology 1999a
B-07	01-Apr-98	30	30	ug/l	205	1 U	1 U	Ecology 1999a
B-08	01-Apr-98	18	18	ug/l	1 U	1 U	1 U	Ecology 1999a
B-08	01-Apr-98	35	35	ug/l	116	1 U	1 U	Ecology 1999a
B-11	02-Apr-98	20	20	ug/l	1730	1 U	1 U	Ecology 1999a
B-11	02-Apr-98	32	32	ug/l	970	1 U	1 U	Ecology 1999a
B-13	02-Apr-98	20	20	ug/l	1 U	1 U	1 U	Ecology 1999a
B-13	02-Apr-98	31	31	ug/l	16	1 U	13	Ecology 1999a
B-14	02-Apr-98	20	20	ug/l	1 U	1 U	610	Ecology 1999a
B-14	02-Apr-98	34	34	ug/l	10	1 U	31	Ecology 1999a
B-15	02-Apr-98	20	20	ug/l	3.2	1 U	1 U	Ecology 1999a
B-15	02-Apr-98	35	35	ug/l	11	1 U	1 U	Ecology 1999a
B-16	02-Apr-98	20	20	ug/l	1 U	1 U	1 U	Ecology 1999a
B-16	02-Apr-98	34	34	ug/l	1 U	1 U	1 U	Ecology 1999a
B-17	02-Apr-98	19	19	ug/l	360	1 U	1 U	Ecology 1999a
B-17	02-Apr-98	34	34	ug/l	740	1 U	1 U	Ecology 1999a
B-18	02-Apr-98	15	15	ug/l	1 U	1 U	1 U	Ecology 1999a
B-19	02-Apr-98	20	20	ug/l	1 U	1 U	1 U	Ecology 1999a

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
B-20	27-Apr-98	11	13	ug/l	22000	24	20 U	Ecology 1999a
B-23	27-Apr-98	10	12	ug/l	380	4 U	4 U	Ecology 1999a
B-24	27-Apr-98	13	15	ug/l	980	4 U	4 U	Ecology 1999a
B-25	27-Apr-98	13	15	ug/l	5.5	1 U	1 U	Ecology 1999a
B-26	27-Apr-98	13	15	ug/l	20000	28 U	2.5 U	Ecology 1999a
B-27	27-Apr-98	13	15	ug/l	320	82	100	Ecology 1999a
GP-1	20-Jun-00	0	16	ug/l	190000	420	220	E&E 2000
GP-2	20-Jun-00	0	16	ug/l	1 U	1 U	1 U	E&E 2000
GP-3	20-Jun-00	12	16	ug/l	0.1 U	0.2 U	2 U	E&E 2000
GP-500	18-Aug-03	8	10	ug/l	14900			URS 2004
GP-500	18-Aug-03	14	16	ug/l	37200			URS 2004
GP-500	18-Aug-03	24	26	ug/l	56200			URS 2004
GP-500	18-Aug-03	30	32	ug/l	39100			URS 2004
GP-501	19-Aug-03	8	10	ug/l	114000			URS 2004
GP-501	19-Aug-03	14	16	ug/l	217000			URS 2004
GP-501	19-Aug-03	24	26	ug/l	127000			URS 2004
GP-501	19-Aug-03	30	32	ug/l	10300			URS 2004
GP-502	20-Aug-03	10	14	ug/l	63600			URS 2004
GP-502	20-Aug-03	24	26	ug/l	196000			URS 2004
GP-502	20-Aug-03	30	32	ug/l	64200			URS 2004
GP-503	21-Aug-03	14	16	ug/l	115000			URS 2004
GP-503	21-Aug-03	24	26	ug/l	53800			URS 2004
GP-503	21-Aug-03	30	32	ug/l	67900			URS 2004
GP-504	22-Aug-03	14	16	ug/l	335			URS 2004
GP-504	22-Aug-03	24	26	ug/l	17.3			URS 2004
GP-504	22-Aug-03	30	32	ug/l	83.5			URS 2004
GP-505	25-Aug-03	14	16	ug/l	1160			URS 2004
GP-505	25-Aug-03	30	32	ug/l	92.7			URS 2004
GP-506	26-Aug-03	12	14	ug/l	69800			URS 2004
GP-506	03-Sep-03	22	24	ug/l	7830			URS 2004
GP-506	03-Sep-03	28	30	ug/l	1590			URS 2004
GP-507	03-Sep-03	12	14	ug/l	621			URS 2004
GP-507	03-Sep-03	22	24	ug/l	50100			URS 2004
GP-507	03-Sep-03	28	30	ug/l	1400			URS 2004
GP-508	05-Sep-03	16	18	ug/l	15700			URS 2004
GP-508	05-Sep-03	22	24	ug/l	2430			URS 2004
GP-508	05-Sep-03	28	30	ug/l	1080			URS 2004
GP-509	05-Sep-03	16	18	ug/l	2.5			URS 2004
GP-509	05-Sep-03	22	24	ug/l	2.5			URS 2004
GP-509	08-Sep-03	28	30	ug/l	24.2			URS 2004
GP-510	08-Sep-03	12	14	ug/l	6780			URS 2004
GP-510	08-Sep-03	28	30	ug/l	2730			URS 2004
GP-511	08-Sep-03	12	14	ug/l	14.1			URS 2004
GP-511	09-Sep-03	22	24	ug/l	2.5 U			URS 2004
GP-511	09-Sep-03	28	30	ug/l	2.5 U			URS 2004
GP-512	09-Sep-03	12	14	ug/l	70.5			URS 2004
GP-512	09-Sep-03	22	24	ug/l	136			URS 2004
GP-512	09-Sep-03	28	30	ug/l	11			URS 2004
GP-513	10-Sep-03	12	14	ug/l	414			URS 2004
GP-513	10-Sep-03	22	24	ug/l	1780			URS 2004
GP-513	10-Sep-03	28	30	ug/l	20600			URS 2004
GP-514	10-Sep-03	18	20	ug/l	1440			URS 2004
GP-514	11-Sep-03	24	26	ug/l	1630			URS 2004
GP-514	11-Sep-03	30	32	ug/l	510			URS 2004
GP-515	11-Sep-03	12	14	ug/l	591			URS 2004
GP-515	11-Sep-03	22	24	ug/l	330			URS 2004
GP-515	11-Sep-03	30	32	ug/l	350			URS 2004
GP-516	11-Sep-03	12	14	ug/l	50 U			URS 2004
GP-516	11-Sep-03	22	24	ug/l	50 U			URS 2004
GP-516	11-Sep-03	28	30	ug/l	2570			URS 2004
GP-517	12-Sep-03	18	20	ug/l	3800			URS 2004

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
GP-517	12-Sep-03	28	30	ug/l	2410			URS 2004
GP-518	12-Sep-03	12	14	ug/l	5 U			URS 2004
GP-518	15-Sep-03	28	30	ug/l	766 J			URS 2004
GP-519	15-Sep-03	14	16	ug/l	5 UJ			URS 2004
GP-519	15-Sep-03	22	24	ug/l	5 UJ			URS 2004
GP-519	15-Sep-03	28	30	ug/l	545 J			URS 2004
GP-520	15-Sep-03	14	16	ug/l	1160 J			URS 2004
GP-520	15-Sep-03	19	21	ug/l	47.3 J			URS 2004
GP-520	15-Sep-03	24	26	ug/l	1490 J			URS 2004
GP-520	15-Sep-03	29	31	ug/l	116 J			URS 2004
GP-521	15-Sep-03	12	14	ug/l	1023 J			URS 2004
GP-521	16-Sep-03	19	21	ug/l	575 J			URS 2004
GP-521	16-Sep-03	24	26	ug/l	126 J			URS 2004
GP-521	16-Sep-03	29	31	ug/l	694 J			URS 2004
GP-522	16-Sep-03	12	14	ug/l	113 J			URS 2004
GP-522	16-Sep-03	19	21	ug/l	1880 J			URS 2004
GP-522	16-Sep-03	24	26	ug/l	137 J			URS 2004
GP-522	16-Sep-03	29	31	ug/l	511 J			URS 2004
GP-523	16-Sep-03	12	14	ug/l	5 UJ			URS 2004
GP-523	16-Sep-03	19	21	ug/l	5 UJ			URS 2004
GP-523	16-Sep-03	24	26	ug/l	5 UJ			URS 2004
GP-523	16-Sep-03	29	31	ug/l	165 J			URS 2004
GP-524	16-Sep-03	12	14	ug/l	5 UJ			URS 2004
GP-524	16-Sep-03	19	21	ug/l	5 UJ			URS 2004
GP-524	16-Sep-03	24	26	ug/l	5 UJ			URS 2004
GP-524	16-Sep-03	29	31	ug/l	194 J			URS 2004
GP-525	17-Sep-03	12	14	ug/l	5 U			URS 2004
GP-525	17-Sep-03	19	21	ug/l	5 U			URS 2004
GP-525	17-Sep-03	24	26	ug/l	253			URS 2004
GP-525	17-Sep-03	29	31	ug/l	323 J			URS 2004
GP-526	17-Sep-03	12	14	ug/l	5 U			URS 2004
GP-526	17-Sep-03	19	21	ug/l	5 U			URS 2004
GP-526	17-Sep-03	24	26	ug/l	5 U			URS 2004
GP-526	17-Sep-03	29	31	ug/l	5 U			URS 2004
GP-527	17-Sep-03	12	14	ug/l	5 U			URS 2004
GP-527	17-Sep-03	19	21	ug/l	5 U			URS 2004
GP-527	17-Sep-03	24	26	ug/l	7.5			URS 2004
GP-527	17-Sep-03	29	31	ug/l	41			URS 2004
GP-528	17-Sep-03	12	14	ug/l	32300 J			URS 2004
GP-528	17-Sep-03	19	21	ug/l	14600 J			URS 2004
GP-528	18-Sep-03	24	26	ug/l	2990 J			URS 2004
GP-528	18-Sep-03	29	31	ug/l	1310 J			URS 2004
GP-529	18-Sep-03	14	16	ug/l	35.1 J			URS 2004
GP-529	18-Sep-03	24	26	ug/l	285 J			URS 2004
GP-529	18-Sep-03	29	31	ug/l	528 J			URS 2004
GP-530	18-Sep-03	12	14	ug/l	6 J			URS 2004
GP-530	18-Sep-03	24	26	ug/l	59.5 J			URS 2004
GP-530	18-Sep-03	29	31	ug/l	2850 J			URS 2004
GP-531	18-Sep-03	14	16	ug/l	40.5 J			URS 2004
GP-531	18-Sep-03	19	21	ug/l	5 UJ			URS 2004
GP-531	18-Sep-03	24	26	ug/l	374 J			URS 2004
GP-531	18-Sep-03	29	31	ug/l	131 J			URS 2004
GP-A3	26-Jun-00	25	30	ug/l	20 J	1 U	1 U	E&E 2000
GP-A4	26-Jun-00	25	30	ug/l	3700	100 U	100 U	E&E 2000
MW-1	03-Mar-97			ug/l	3 U	3 U	3 U	SAIC 1997
MW-1	08-Oct-97			ug/l	1 U	1 U	1 U	Ecology 1999b
MW-1	26-Jan-98			ug/l	0.66 J	1 U	1 U	Ecology 1999b
MW-1	27-Apr-98			ug/l	0.87 J	1 U	1 U	Ecology 1999b
MW-1	22-Jul-98			ug/l	1 U	1 U	1 U	Ecology 1999b
MW-1	02-Feb-99			ug/l	1 U	2 U	1 U	Ecology 2000
MW-1	06-Jul-99			ug/l	1 U	2 U	1 U	Ecology 2000

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-1	01-Feb-00			ug/l	1 U	2 U	1 U	Ecology 2001
MW-1	25-Aug-00			ug/l	1 U	1 U	1 U	E&E 2000
MW-1	31-Jan-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-1	31-Oct-01			ug/l	1 U	1 U	1 U	E&E 2002
MW-1	13-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
MW-2	03-Mar-97			ug/l	300	3 U	3 U	SAIC 1997
MW-2	08-Oct-97			ug/l	257	1 U	1 U	Ecology 1999b
MW-2	27-Jan-98			ug/l	285	1 U	1 U	Ecology 1999b
MW-2	28-Apr-98			ug/l	229	1 U	1 U	Ecology 1999b
MW-2	22-Jul-98			ug/l	142	10 U	10 U	Ecology 1999b
MW-2	03-Feb-99			ug/l	407	40 U	20 UJ	Ecology 2000
MW-2	06-Jul-99			ug/l	285	0.21 J	1 U	Ecology 2000
MW-2	02-Feb-00			ug/l	287	40 U	20 U	Ecology 2001
MW-2	25-Aug-00			ug/l	220	5 U	5 U	E&E 2000
MW-2	31-Jan-01			ug/l	500	10 U	10 U	E&E 2001
MW-2	31-Oct-01			ug/l	280	5 U	5 U	E&E 2002
MW-2	13-Aug-02			ug/l	240	2 U	2 U	Farallon 2003
MW-2	12-Nov-02	44	44	ug/l	370	2 U	2 U	Farallon 2003
MW-2	05-Feb-03	43.9	43.9	ug/l	420	2 U	2 U	Farallon 2004
MW-2	13-Nov-03	41	41	ug/l	420	10 U	10 U	Farallon 2004
MW-3	03-Mar-97			ug/l	640	1 J	3 U	SAIC 1997
MW-3	09-Oct-97			ug/l	1280	2.7	1 U	Ecology 1999b
MW-3	26-Jan-98			ug/l	811	2.4	0.22 J	Ecology 1999b
MW-3	27-Apr-98			ug/l	1350	3	0.24 J	Ecology 1999b
MW-3	22-Jul-98			ug/l	1170	1.8 J	0.4 J	Ecology 1999b
MW-3	03-Feb-99			ug/l	751	5.6 J	20 UJ	Ecology 2000
MW-3	06-Jul-99			ug/l	656	200 U	100 U	Ecology 2000
MW-3	02-Feb-00			ug/l	675	200 U	100 U	Ecology 2001
MW-3	25-Aug-00			ug/l	560	5 U	5 U	E&E 2000
MW-3	31-Jan-01			ug/l	1300	10 U	10 U	E&E 2001
MW-3	01-Nov-01			ug/l	830	10 U	10 U	E&E 2002
MW-3	20-Aug-02			ug/l	500	4.5	4 U	Farallon 2003
MW-3	14-Nov-02	43	43	ug/l	620	5.8	4 U	Farallon 2003
MW-3	06-Feb-03	45.5	45.5	ug/l	580	6	4 U	Farallon 2004
MW-3	13-Nov-03	42.45	42.45	ug/l	730	10 U	10 U	Farallon 2004
MW-4	04-Mar-97			ug/l	250	3 U	3 U	SAIC 1997
MW-4	09-Oct-97			ug/l	304	5 U	5 U	Ecology 1999b
MW-4	27-Jan-98			ug/l	344	1.1	0.14 J	Ecology 1999b
MW-4	27-Apr-98			ug/l	396	1.3	1 U	Ecology 1999b
MW-4	22-Jul-98			ug/l	264	1 U	0.013 J	Ecology 1999b
MW-4	02-Feb-99			ug/l	385	40 U	20 UJ	Ecology 2000
MW-4	07-Jul-99			ug/l	363	2	0.23 J	Ecology 2000
MW-4	04-Feb-00			ug/l	340	100 U	50 U	Ecology 2001
MW-4	26-Aug-00			ug/l	290	5 U	5 U	E&E 2000
MW-4	31-Jan-01			ug/l	900	10 U	10 U	E&E 2001
MW-4	31-Oct-01			ug/l	650	10 U	10 U	E&E 2002
MW-4	13-Aug-02			ug/l	580	4	4 U	Farallon 2003
MW-4	13-Nov-02			ug/l	480	4.3	4 U	Farallon 2003
MW-4	13-Nov-02	43	43	ug/l	550	3.8	2 U	Farallon 2003
MW-4	11-Feb-03	43	43	ug/l	460	4 U	4 U	Farallon 2004
MW-4	11-Nov-03	41.45	41.45	ug/l	700	7.8	4 U	Farallon 2004
MW-4	11-Jul-07	45	45	ug/l	920	15	3.1	Parametrix 2007
MW-5	08-May-97			ug/l	3	3 U	3 U	SAIC 1997
MW-5	08-Oct-97			ug/l	3.1	1 U	1 U	Ecology 1999b
MW-5	26-Jan-98			ug/l	4.2	1 U	1 U	Ecology 1999b
MW-5	27-Apr-98			ug/l	7	1 U	1 U	Ecology 1999b
MW-5	23-Jul-98			ug/l	3.5	1 U	1 U	Ecology 1999b
MW-5	02-Feb-99			ug/l	4.4	2 U	1 U	Ecology 2000
MW-5	07-Jul-99			ug/l	3.5	2 U	1 U	Ecology 2000
MW-5	04-Feb-00			ug/l	3.6	2 U	1 U	Ecology 2001
MW-5	25-Aug-00			ug/l	3	1 U U	1	E&E 2000

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-5	31-Jan-01			ug/l	4	1 U	1 U	E&E 2001
MW-5	31-Oct-01			ug/l	7.2	1 U	1 U	E&E 2002
MW-5	13-Aug-02			ug/l	2.4	0.2 U	0.2 U	Farallon 2003
MW-5	13-Aug-02			ug/l	2.5	0.2 U	0.2 U	Farallon 2003
MW-5	13-Nov-02	45	45	ug/l	2.5	0.2 U	0.2 U	Farallon 2003
MW-5	06-Feb-03	47.5	47.5	ug/l	3.1	0.2 U	0.2 U	Farallon 2004
MW-5	11-Nov-03	45.5	45.5	ug/l	5	0.2 U	0.2 U	Farallon 2004
MW-6	08-May-97			ug/l	170	3 U	3 U	SAIC 1997
MW-6	08-Oct-97			ug/l	196	1 U	1 U	Ecology 1999b
MW-6	26-Jan-98			ug/l	200	1 U	1 U	Ecology 1999b
MW-6	28-Apr-98			ug/l	170	1 U	1 U	Ecology 1999b
MW-6	22-Jul-98			ug/l	119	1 U	1 U	Ecology 1999b
MW-6	03-Feb-99			ug/l	251	40 U	20 UJ	Ecology 2000
MW-6	06-Jul-99			ug/l	169	0.1 J	1 U	Ecology 2000
MW-6	02-Feb-00			ug/l	182	20 U	10 U	Ecology 2001
MW-6	26-Aug-00			ug/l	160	1 U	1 U	E&E 2000
MW-6	31-Jan-01			ug/l	370	10 U	10 U	E&E 2001
MW-6	31-Oct-01			ug/l	170	5 U	5 U	E&E 2002
MW-6	13-Aug-02			ug/l	130	1 U	1 U	Farallon 2003
MW-6	12-Nov-02	45	45	ug/l	170	1 U	1 U	Farallon 2003
MW-6	05-Feb-03	44	44	ug/l	250	1 U	1 U	Farallon 2004
MW-6	05-Feb-03	44	44	ug/l	240	1 U	1 U	Farallon 2004
MW-6	13-Nov-03	39	39	ug/l	200	4 U	4 U	Farallon 2004
MW-7	08-May-97			ug/l	3 U	3 U	3 U	SAIC 1997
MW-7	08-Oct-97			ug/l	0.74 J	1 U	1 U	Ecology 1999b
MW-7	27-Jan-98			ug/l	1.2	1 U	1 U	Ecology 1999b
MW-7	27-Apr-98			ug/l	1.8	1 U	1 U	Ecology 1999b
MW-7	22-Jul-98			ug/l	0.76 J	1 U	1 U	Ecology 1999b
MW-7	02-Feb-99			ug/l	0.73 J	2 U	1 U	Ecology 2000
MW-7	07-Jul-99			ug/l	0.51 J	2 U	1 U	Ecology 2000
MW-7	04-Feb-00			ug/l	1.9	2 U	1 U	Ecology 2001
MW-7	26-Aug-00			ug/l	170	1 U	1 U	E&E 2000
MW-7	31-Jan-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-7	31-Oct-01			ug/l	1.5	1 U	1 U	E&E 2002
MW-7	13-Aug-02			ug/l	0.68	0.2 U	0.2 U	Farallon 2003
MW-7	12-Nov-02	42	42	ug/l	0.7	0.2 U	0.2 U	Farallon 2003
MW-7	05-Feb-03	41.65	41.65	ug/l	0.88	0.2 U	0.2 U	Farallon 2004
MW-7	13-Nov-03	39	39	ug/l	1.2	0.2 U	0.2 U	Farallon 2004
MW-8	08-May-97			ug/l	1500	60 U	60 U	SAIC 1997
MW-8	10-Oct-97			ug/l	1700	5 U	5 U	Ecology 1999b
MW-8	27-Jan-98			ug/l	1850	1.6	0.87 J	Ecology 1999b
MW-8	28-Apr-98			ug/l	2000	1.5	0.61 J	Ecology 1999b
MW-8	04-Feb-99			ug/l	1910	200 U	100 UJ	Ecology 2000
MW-8	07-Jul-99			ug/l	1370	200 U	100 U	Ecology 2000
MW-8	03-Feb-00			ug/l	1540	200 U	100 U	Ecology 2001
MW-8	26-Aug-00			ug/l	1600	10 U	10 U	E&E 2000
MW-8	31-Jan-01			ug/l	2100	10 U	10 U	E&E 2001
MW-8	13-Feb-01			ug/l	2100	100 U	100 U	E&E 2001
MW-8	31-Oct-01			ug/l	1600	20 U	20 U	E&E 2002
MW-8	14-Aug-02			ug/l	1300	10 U	10 U	Farallon 2003
MW-8	13-Nov-02	43.6	43.6	ug/l	1400	10 U	10 U	Farallon 2003
MW-8	06-Feb-03	42.9	42.9	ug/l	1400	10 U	10 U	Farallon 2004
MW-8	13-Nov-03	41.5	41.5	ug/l	1800	20 U	20 U	Farallon 2004
MW-9	28-Aug-00			ug/l	44000	100 U	100 U	E&E 2000
MW-9	31-Jan-01			ug/l	21000	1000 U	1000 U	E&E 2001
MW-9	31-Oct-01			ug/l	20000	200 U	200 U	E&E 2002
MW-9	11-Sep-02			ug/l	8200	100 U	100 U	Farallon 2003
MW-9	15-Nov-02	47	47	ug/l	11000	100 U	100 U	Farallon 2003
MW-9	11-Feb-03	44.65	44.65	ug/l	10000	100 U	100 U	Farallon 2004
MW-9	13-Nov-03	42	42	ug/l	8680	100 U	100 U	Farallon 2004
MW-10	28-Aug-00			ug/l	2	1 U U	1	E&E 2000

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-10	31-Jan-01			ug/l	1	1 U	1 U	E&E 2001
MW-10	31-Oct-01			ug/l	1 U	1 U	1 U	E&E 2002
MW-10	21-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
MW-10	12-Nov-02	47	47	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
MW-10	11-Feb-03	43	43	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
MW-10	13-Nov-03	40	40	ug/l	1 U	1 U	1 U	Farallon 2004
MW-11	02-Feb-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-11	13-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
MW-12	03-Feb-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-13	03-Feb-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-14	03-Feb-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-14	14-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
MW-14	13-Nov-02	46	46	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
MW-14	06-Feb-03	45.48	45.48	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
MW-14	11-Nov-03	45.5	45.5	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
MW-15	03-Feb-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-16	03-Feb-01			ug/l	1 U	1 U	1 U	E&E 2001
MW-17	14-Aug-02			ug/l	2.4	2 U	280	Farallon 2003
MW-17	12-Nov-02	23	23	ug/l	4 U	4 U	510	Farallon 2003
MW-17	05-Feb-03	22.05	22.05	ug/l	2.1	2 U	370	Farallon 2004
MW-17	14-Nov-03	19.7	19.7	ug/l	4 U	4 U	238	Farallon 2004
MW-18	14-Aug-02			ug/l	54	0.4 U	9.4	Farallon 2003
MW-18	14-Aug-02			ug/l	56	0.4 U	8.7	Farallon 2003
MW-18	12-Nov-02	45.5	45.5	ug/l	68	0.4 U	1.5	Farallon 2003
MW-18	12-Nov-02	45.5	45.5	ug/l	67	0.4 U	1.4	Farallon 2003
MW-18	05-Feb-03	44.27	44.27	ug/l	75	0.4 U	3.2	Farallon 2004
MW-18	14-Nov-03	45.35	45.35	ug/l	88.6	1 U	4.19	Farallon 2004
MW-19	12-Aug-02			ug/l	1400	10 U	10 U	Farallon 2003
MW-19	21-Aug-02			ug/l	1600	10 U	10 U	Farallon 2003
MW-19	13-Nov-02	44.5	44.5	ug/l	1300	10 U	10 U	Farallon 2003
MW-19	06-Feb-03	47.35	47.35	ug/l	1400	10 U	10 U	Farallon 2004
MW-19	13-Nov-03	45	45	ug/l	1400	10 U	10 U	Farallon 2004
MW-19	11-Jul-07	45	45	ug/l	1400	9.9	2.4	Parametrix 2007
MW-20	15-Aug-02			ug/l	1300	10 U	10 U	Farallon 2003
MW-20	15-Aug-02			ug/l	1400	10 U	10 U	Farallon 2003
MW-20	13-Nov-02	23	23	ug/l	1300	10 U	10 U	Farallon 2003
MW-20	06-Feb-03	24.93	24.93	ug/l	1700	10 U	10 U	Farallon 2004
MW-20	14-Nov-03	22.8	22.8	ug/l	1500	20 U	20 U	Farallon 2004
MW-21	15-Aug-02			ug/l	1400	10 U	10 U	Farallon 2003
MW-21	13-Nov-02	43	43	ug/l	1500	10 U	10 U	Farallon 2003
MW-21	06-Feb-03	39.5	39.5	ug/l	1800	10 U	10 U	Farallon 2004
MW-21	14-Nov-03	42.61	42.61	ug/l	1620	20 U	20 U	Farallon 2004
MW-21	11-Jul-07	45	45	ug/l	1500	13	3	Parametrix 2007
MW-22	16-Aug-02			ug/l	22	0.2 U	0.2 U	Farallon 2003
MW-22	13-Nov-02	22.5	22.5	ug/l	4.4	0.2 U	0.2 U	Farallon 2003
MW-22	10-Feb-03	20	20	ug/l	38	0.4 U	0.4 U	Farallon 2004
MW-22	11-Nov-03	14.74	14.74	ug/l	2.7	0.2 U	0.2 U	Farallon 2004
MW-23	16-Aug-02			ug/l	540	5.9	4 U	Farallon 2003
MW-23	13-Nov-02	44.5	44.5	ug/l	570	7.9	4 U	Farallon 2003
MW-23	10-Feb-03	47	47	ug/l	560	7.8	4 U	Farallon 2004
MW-23	11-Nov-03	42.24	42.24	ug/l	680	13	4 U	Farallon 2004
MW-23	11-Jul-07	48	48	ug/l	870	18	3.8	Parametrix 2007
MW-24	12-Aug-02			ug/l	710	7.7	4 U	Farallon 2003
MW-24	13-Nov-02	43	43	ug/l	690	7.8	4 U	Farallon 2003
MW-24	10-Feb-03	45.43	45.43	ug/l	610	7.6	4 U	Farallon 2004
MW-24	11-Nov-03	43.61	43.61	ug/l	900	14	4 U	Farallon 2004
MW-24	11-Jul-07	45	45	ug/l	850	18	3.8	Parametrix 2007
MW-24	11-Jul-07	45	45	ug/l	910	19	3.5	Parametrix 2007
MW-25	14-Aug-02			ug/l	650	4 U	4 U	Farallon 2003
MW-25	14-Nov-02	45.5	45.5	ug/l	760	2 U	2 U	Farallon 2003
MW-25	14-Nov-02			ug/l	700	4 U	4 U	Farallon 2003

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-25	11-Nov-03	41	41	ug/l	690	4 U	4 U	Farallon 2004
MW-25	10-Jul-07	43	43	ug/l	600	1 U	1 U	Parametrix 2007
MW-26	19-Sep-03	22.58	22.58	ug/l	17	0.2 U	0.2 U	Farallon 2004
MW-26	13-Nov-03	22	22	ug/l	31	4 U	4 U	Farallon 2004
MW-27	19-Sep-03	40.13	40.13	ug/l	1300	6.4	1.1	Farallon 2004
MW-27	13-Nov-03	37.1	37.1	ug/l	1500	10 U	10 U	Farallon 2004
MW-28	12-Sep-03	36.77	36.77	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
MW-28	11-Nov-03	36.84	36.84	ug/l	0.35	0.2 U	0.2 U	Farallon 2004
MW-29	12-Sep-03	23.03	23.03	ug/l	140	2 U	2 U	Farallon 2004
MW-29	13-Nov-03	20.1	20.1	ug/l	19	0.33	0.2	Farallon 2004
MW-30	12-Sep-03	43.99	43.99	ug/l	1700	20 U	20 U	Farallon 2004
MW-30	13-Nov-03	42.91	42.91	ug/l	1300	10	10	Farallon 2004
MW-30	12-Jul-07	45	45	ug/l	1300	19	4.1	Parametrix 2007
MW-31	19-Sep-03	22.81	22.81	ug/l	2300	7.2	1.7	Farallon 2004
MW-31	11-Nov-03	19.71	19.71	ug/l	2300	15	10 U	Farallon 2004
MW-32	18-Sep-03	24.25	24.25	ug/l	2100	3.3	0.57	Farallon 2004
MW-32	11-Nov-03	21.15	21.15	ug/l	1800	10 U	10 U	Farallon 2004
MW-32	12-Jul-07	21	21	ug/l	2700	12	2.9	Parametrix 2007
MW-32	12-Jul-07	21	21	ug/l	2500	13	3.2	Parametrix 2007
MW-33	14-Apr-04	19	19	ug/l	1100	10 U	10 U	Farallon 2004
MW-34	14-Apr-04	25.5	25.5	ug/l	1700	10 U	10 U	Farallon 2004
MW-600	04-Nov-03	35	35	ug/l	417			URS 2004
MW-600	04-Nov-03	41	41	ug/l	450			URS 2004
MW-600	04-Nov-03	46	46	ug/l	1460			URS 2004
MW-600	21-Nov-03	15	15	ug/l	77100 J			URS 2004
MW-600	21-Nov-03	15	15	ug/l	72700 J	100 J	500 UJ	URS 2004
MW-600	29-Jan-04	40.6	40.6	ug/l	67700	77.9	70.6 J	URS 2004
MW-601	10-Nov-03	35	35	ug/l	1730			URS 2004
MW-601	10-Nov-03	41	41	ug/l	3610			URS 2004
MW-601	10-Nov-03	45	45	ug/l	3170			URS 2004
MW-601	21-Nov-03	15	15	ug/l	79200			URS 2004
MW-601	21-Nov-03	15	15	ug/l	83500 J	250 UJ	500 UJ	URS 2004
MW-601	29-Jan-04	41.9	41.9	ug/l	13700	25 U	50 U	URS 2004
MW-602	12-Nov-03	14.5	14.5	ug/l	2720000			URS 2004
MW-602	12-Nov-03	35	35	ug/l	203000			URS 2004
MW-602	12-Nov-03	41	41	ug/l	4980			URS 2004
MW-602	24-Nov-03	15	15	ug/l	14200			URS 2004
MW-602	24-Nov-03	15	15	ug/l	10800 J	45 J	32 J	URS 2004
MW-602	01-Dec-03	35	35	ug/l	350 J	20 UJ	20 UJ	URS 2004
MW-602	04-Dec-03	35	35	ug/l	626	1.8 J	5 U	URS 2004
MW-602	05-Dec-03	35	35	ug/l	863	10 U	10 U	URS 2004
MW-602	05-Dec-03	35	35	ug/l	893	10 U	10 U	URS 2004
MW-602	29-Jan-04	38.7	38.7	ug/l	562	1020	909 J	URS 2004
MW-603	14-Nov-03	35	35	ug/l	1130			URS 2004
MW-603	15-Nov-03	41	41	ug/l	728			URS 2004
MW-603	15-Nov-03	44.5	44.5	ug/l	981			URS 2004
MW-603	24-Nov-03	15	15	ug/l	15600			URS 2004
MW-603	24-Nov-03	15	15	ug/l	12000 J	47 J	13 J	URS 2004
MW-603	29-Jan-04	38.4	38.4	ug/l	903	41.7	7.1 J	URS 2004
MW-604	28-Oct-03	34	36	ug/l	1040			URS 2004
MW-604	28-Oct-03	39	41	ug/l	832			URS 2004
MW-604	28-Oct-03	45	47	ug/l	142			URS 2004
MW-604	25-Nov-03	15	15	ug/l	34600			URS 2004
MW-604	25-Nov-03	15	15	ug/l	29000 J	75 J	87 J	URS 2004
MW-604	29-Jan-04	35.7	35.7	ug/l	9800	590	1570 J	URS 2004
MW-605	17-Nov-03	35	35	ug/l	343			URS 2004
MW-605	17-Nov-03	39	39	ug/l	835			URS 2004
MW-605	17-Nov-03	43.5	43.5	ug/l	198			URS 2004
MW-605	24-Nov-03	15	15	ug/l	54600			URS 2004
MW-605	24-Nov-03	15	15	ug/l	39900 J	280 J	150 J	URS 2004
MW-605	02-Dec-03	32	32	ug/l	9520 J	74 J J	39	URS 2004

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-605	03-Dec-03	32	32	ug/l	8940 J	64 J	34 J	URS 2004
MW-605	03-Dec-03	32	32	ug/l	8190 J	62 J	32 J	URS 2004
MW-606	30-Oct-03	34	34	ug/l	20 U			URS 2004
MW-606	30-Oct-03	40	40	ug/l	20 U			URS 2004
MW-606	30-Oct-03	46	46	ug/l	20 U			URS 2004
MW-606	06-Nov-03	35	35	ug/l	55	2.5 U	2.5 U	URS 2004
MW-607	22-Oct-03	35	37	ug/l	221			URS 2004
MW-607	22-Oct-03	40	42	ug/l	143			URS 2004
MW-607	22-Oct-03	44	46	ug/l	20 U			URS 2004
MW-607	07-Nov-03	30	30	ug/l	170	5 U	5 U	URS 2004
MW-608	24-Oct-03	34	36	ug/l	1456			URS 2004
MW-608	24-Oct-03	39	41	ug/l	25.8			URS 2004
MW-608	24-Oct-03	44	46	ug/l	50.8			URS 2004
MW-608	07-Nov-03	35	35	ug/l	1490	13 U	13 U	URS 2004
MW-R1	08-Jul-99			ug/l	6740	2000 U	1000 U	Ecology 2000
MW-R1	03-Feb-00			ug/l	22800	2000 U	1000 U	Ecology 2001
MW-R1	26-Aug-00			ug/l	39000	100 U	100 U	E&E 2000
MW-R1	30-Jan-01			ug/l	52000	1000 U	1000 U	E&E 2001
MW-R1	30-Oct-01			ug/l	59000	500 U	500 U	E&E 2002
MW-R1	15-Aug-02			ug/l	83000	400 U	400 U	Farallon 2003
MW-R1	15-Nov-02	25	25	ug/l	97000	400 U	400 U	Farallon 2003
MW-R1	04-Feb-03	24	24	ug/l	65000	400 U	400 U	Farallon 2004
MW-R1	12-Nov-03	23	23	ug/l	82000	1000 U	1000 U	Farallon 2004
MW-R2	08-Jul-99			ug/l	20500	2000 U	1000 U	Ecology 2000
MW-R2	03-Feb-00			ug/l	25400	2000 U	1000 U	Ecology 2001
MW-R2	26-Aug-00			ug/l	24000	5 U	5 U	E&E 2000
MW-R2	30-Jan-01			ug/l	32000	1000 U	1000 U	E&E 2001
MW-R2	31-Oct-01			ug/l	34000	500 U	500 U	E&E 2002
MW-R2	15-Aug-02			ug/l	22000	150	100 U	Farallon 2003
MW-R2	14-Nov-02	44	44	ug/l	28000	420	200 U	Farallon 2003
MW-R2	11-Feb-03	23.5	23.5	ug/l	27000	420	200 U	Farallon 2004
MW-R2	12-Nov-03	23	23	ug/l	31000	1000 U	1000 U	Farallon 2004
MW-R3	08-Jul-99			ug/l	16	2 U	1 U	Ecology 2000
MW-R3	03-Feb-00			ug/l	239	100 U	50 U	Ecology 2001
MW-R3	25-Aug-00			ug/l	39	1 U	1 U	E&E 2000
MW-R3	30-Jan-01			ug/l	550	10 U	21	E&E 2001
MW-R3	31-Oct-01			ug/l	47	1 U	3.9	E&E 2002
MW-R3	15-Aug-02			ug/l	42	1.3	11	Farallon 2003
MW-R3	14-Nov-02	22	22	ug/l	44	2.1	32	Farallon 2003
MW-R3	14-Nov-02	22	22	ug/l	42	2.1	31	Farallon 2003
MW-R3	06-Feb-03	21.1	21.1	ug/l	130	4.3	32	Farallon 2004
MW-R3	12-Nov-03	19	19	ug/l	15	2.6	134	Farallon 2004
MW-R4	07-Jul-99			ug/l	4890	1000 U	500 U	Ecology 2000
MW-R4	04-Feb-00			ug/l	5330	1000 U	500 U	Ecology 2001
MW-R4	25-Aug-00			ug/l	5500	10 U	10 U	E&E 2000
MW-R4	30-Jan-01			ug/l	6900	100 U	100 U	E&E 2001
MW-R4	31-Oct-01			ug/l	6800	50 U	50 U	E&E 2002
MW-R4	15-Aug-02			ug/l	4900	40 U	40 U	Farallon 2003
MW-R4	14-Nov-02	23	23	ug/l	5500	40 U	40 U	Farallon 2003
MW-R4	10-Feb-03	21	21	ug/l	5300	40 U	40 U	Farallon 2004
MW-R4	12-Nov-03	21	21	ug/l	8800	100 U	100 U	Farallon 2004
MW-R5	08-Jul-99			ug/l	27000	4000 U	2000 U	Ecology 2000
MW-R5	03-Feb-00			ug/l	57600	4000 U	2000 U	Ecology 2001
MW-R5	26-Aug-00			ug/l	20000	100 U	100 U	E&E 2000
MW-R5	30-Jan-01			ug/l	56000	1000 U	1000 U	E&E 2001
MW-R5	30-Oct-01			ug/l	61000	500 U	500 U	E&E 2002
MW-R5	15-Aug-02			ug/l	25000	100 U	100 U	Farallon 2003
MW-R5	14-Nov-02	25	25	ug/l	75000	400 U	400 U	Farallon 2003
MW-R5	07-Feb-03	25.7	25.7	ug/l	81000	400 U	400 U	Farallon 2004
MW-R5	12-Nov-03	23	23	ug/l	89000	1000 U	1000 U	Farallon 2004
MW-R6	09-Jul-99			ug/l	36100	393 J	2000 U	Ecology 2000

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
MW-R6	04-Feb-00			ug/l	33800	4000 U	2000 U	Ecology 2001
MW-R6	26-Aug-00			ug/l	37000	200 U	100 U	E&E 2000
MW-R6	30-Jan-01			ug/l	20000	1000 U	1000 U	E&E 2001
MW-R6	30-Oct-01			ug/l	21000	270	200 U	E&E 2002
MW-R6	20-Aug-02			ug/l	23000	300	150	Farallon 2003
MW-R6	14-Nov-02	25	25	ug/l	17000	290	210	Farallon 2003
MW-R6	07-Feb-03	23	23	ug/l	21000	310	140	Farallon 2004
MW-R6	07-Feb-03	23	23	ug/l	20000	300	150	Farallon 2004
MW-R6	12-Nov-03	21	21	ug/l	29000	1000 U	1000 U	Farallon 2004
MW-R7	09-Jul-99			ug/l	3190	2000 U	1000 U	Ecology 2000
MW-R7	02-Feb-00			ug/l	2890	2000 U	1000 U	Ecology 2001
MW-R7	25-Aug-00			ug/l	3100	10 U	10 U	E&E 2000
MW-R7	30-Jan-01			ug/l	4700	100 U	100 U	E&E 2001
MW-R7	30-Oct-01			ug/l	5100	50 U	50 U	E&E 2002
MW-R7	20-Aug-02			ug/l	3800	20 U	20 U	Farallon 2003
MW-R7	14-Nov-02	22	22	ug/l	4500	40 U	40 U	Farallon 2003
MW-R7	07-Feb-03	14	14	ug/l	6000	40 U	40 U	Farallon 2004
MW-R7	12-Nov-03	22	22	ug/l	6800	200 U	200 U	Farallon 2004
MW-R7	12-Jul-07	25	25	ug/l	6100	5.6	2.3	Parametrix 2007
MW-R8	29-Aug-00			ug/l	960	5 U	5 U	E&E 2000
MW-R8	30-Jan-01			ug/l	1500	10 U	10 U	E&E 2001
MW-R8	30-Oct-01			ug/l	200	5 U	5 U	E&E 2002
MW-R8	22-Aug-02			ug/l	660	4 U	4 U	Farallon 2003
MW-R8	20-Nov-02	15	15	ug/l	4700	20 U	20 U	Farallon 2003
MW-R8	20-Nov-02	26	26	ug/l	2400	20 U	20 U	Farallon 2003
MW-R8	20-Nov-02	37	37	ug/l	580	4 U	4 U	Farallon 2003
MW-R8	20-Nov-02	48.5	48.5	ug/l	360	2 U	2 U	Farallon 2003
MW-R8	07-Feb-03	43.1	43.1	ug/l	33	0.2 U	0.2 U	Farallon 2004
MW-R8	12-Nov-03	45	45	ug/l	1000	10 U	10 U	Farallon 2004
MW-R9	29-Aug-00			ug/l	560	1 U	1 U	E&E 2000
MW-R9	30-Jan-01			ug/l	1000	10 U	10 U	E&E 2001
MW-R9	30-Oct-01			ug/l	730	10 U	10 U	E&E 2002
MW-R9	21-Aug-02			ug/l	450	2 U	2 U	Farallon 2003
MW-R9	14-Nov-02	47	47	ug/l	400	2 U	2 U	Farallon 2003
MW-R9	07-Feb-03	39.65	39.65	ug/l	430	2 U	2 U	Farallon 2004
MW-R9	12-Nov-03	44	44	ug/l	580	10 U	10 U	Farallon 2004
MW-R10	29-Aug-00			ug/l	980	5 U	5 U	E&E 2000
MW-R10	30-Jan-01			ug/l	3900	100 U	100 U	E&E 2001
MW-R10	30-Oct-01			ug/l	1700	74	10 U	E&E 2002
MW-R10	20-Aug-02			ug/l	1400	27	10 U	Farallon 2003
MW-R10	19-Nov-02	47	47	ug/l	1700	25	10 U	Farallon 2003
MW-R10	07-Feb-03	46.95	46.95	ug/l	2000	29	20 U	Farallon 2004
MW-R10	12-Nov-03	44	44	ug/l	2200	32	10 U	Farallon 2004
MW-R11	29-Aug-00			ug/l	110	1 U	1 U	E&E 2000
MW-R11	31-Jan-01			ug/l	93	1 U	1 U	E&E 2001
MW-R11	30-Oct-01			ug/l	88	1 U	1 U	E&E 2002
MW-R11	21-Aug-02			ug/l	29	0.2 U	0.2 U	Farallon 2003
MW-R11	21-Aug-02			ug/l	28	0.2 U	0.2 U	Farallon 2003
MW-R11	19-Nov-02	26	26	ug/l	22	0.2 U	0.2 U	Farallon 2003
MW-R11	19-Nov-02	37	37	ug/l	25	0.2 U	0.2 U	Farallon 2003
MW-R11	19-Nov-02	48.5	48.5	ug/l	23	0.2 U	0.2 U	Farallon 2003
MW-R11	19-Nov-02	48.5	48.5	ug/l	22	0.2 U	0.2 U	Farallon 2003
MW-R11	20-Nov-02	20.5	20.5	ug/l	25	0.2 U	0.2 U	Farallon 2003
MW-R11	06-Feb-03	45	45	ug/l	22	0.2 U	0.2 U	Farallon 2004
MW-R11	13-Nov-03	45	45	ug/l	37	0.2 U	0.2 U	Farallon 2004
PW-1	01-Oct-93			ug/l	U			Ecology 1999b
PW-1	03-Feb-99			ug/l	1 U	2 U	1 U	Ecology 2000
PW-1	07-Sep-00			ug/l	1 U	2 U	1 U	Ecology 2001
PW-1	31-Oct-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-1	06-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-1	06-Aug-02			ug/l	0.39	0.2 U	0.2 U	Farallon 2003

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
PW-1	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-2	01-Oct-93			ug/l	119			Ecology 1999b
PW-2	01-Jun-96			ug/l	130			Ecology 1999b
PW-2	03-Mar-97			ug/l	130	1 J	3 U	SAIC 1997
PW-2	26-Jan-98			ug/l	140			Ecology 2000
PW-2	27-Apr-98			ug/l	87			Ecology 2000
PW-2	29-Apr-98			ug/l		0.87 J	0.33 J	Ecology 1999b
PW-2	23-Jul-98			ug/l	62	1 U	0.23 J	Ecology 1999b
PW-2	03-Feb-99			ug/l	93	40 U	20 U	Ecology 2000
PW-2	06-Jul-99			ug/l	73	1.7 J	5 U	Ecology 2000
PW-2	01-Feb-00			ug/l	75	20 U	10 U	Ecology 2001
PW-2	07-Sep-00			ug/l	73	3.1	0.43 J	Ecology 2001
PW-3	01-Oct-93			ug/l	122			Ecology 1999b
PW-3	01-Jun-96			ug/l	284			Ecology 1999b
PW-3	03-Mar-97			ug/l	270 D	1 J	3 U	SAIC 1997
PW-3	09-Oct-97			ug/l	347	1 J	5 U	Ecology 1999b
PW-3	26-Jan-98			ug/l	380	1.5	1 U	Ecology 1999b
PW-3	27-Apr-98			ug/l	381	2.1	1 U	Ecology 1999b
PW-3	22-Jul-98			ug/l	349	1 U	0.026 J	Ecology 1999b
PW-3	04-Feb-99			ug/l	368	3 J	10 U	Ecology 2000
PW-3	06-Jul-99			ug/l	379	200 U	100 U	Ecology 2000
PW-3	02-Feb-00			ug/l	292	100 U	50 U	Ecology 2001
PW-3	28-Aug-00			ug/l	350	5 U	5 U	E&E 2000
PW-3	30-Jan-01			ug/l	930	10 U	10 U	E&E 2001
PW-3	02-Nov-01			ug/l	810	10 U	10 U	E&E 2002
PW-3	14-Nov-02			ug/l	560	5.7	4 U	Farallon 2003
PW-4	01-Oct-93			ug/l	204			Ecology 1999b
PW-4	01-Jun-96			ug/l	204			Ecology 1999b
PW-4	04-Mar-97			ug/l	210 D	3 U	3 U	SAIC 1997
PW-4	10-Oct-97			ug/l	219	5 U	5 U	Ecology 1999b
PW-4	29-Jan-98			ug/l	188	0.25 J	0.22 J	Ecology 1999b
PW-4	29-Apr-98			ug/l	242	0.3 J	0.32 J	Ecology 1999b
PW-4	23-Jul-98			ug/l	151	1 U	0.24 J	Ecology 1999b
PW-4	28-Dec-98			ug/l	5	2 U	1 U	Ecology 2001
PW-4	28-Dec-98			ug/l	5.3	2 U	1 U	Ecology 2001
PW-4	28-Dec-98			ug/l	4.7	2 U	1 U	Ecology 2001
PW-4	06-Jul-99			ug/l	138	0.55 J	1.6	Ecology 2000
PW-4	30-Jan-01			ug/l	2	1 U	1 U	E&E 2001
PW-4	31-May-01			ug/l	3			E&E 2002
PW-4	08-Nov-01			ug/l	170	5.8	2.1	E&E 2002
PW-4	06-Aug-02			ug/l	2.3	0.2 U	0.2 U	Farallon 2003
PW-4	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-4	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-4	10-Jul-07			ug/l	14	1 U	3.2	Parametrix 2007
PW-5	01-Oct-93			ug/l	3.3			Ecology 1999b
PW-5	01-Jun-96			ug/l	5.8			Ecology 1999b
PW-5	04-Mar-97			ug/l	7	3 U	3 U	SAIC 1997
PW-5	09-Oct-97			ug/l	7.7	5 U	5 U	Ecology 1999b
PW-5	28-Jan-98			ug/l	7.6	1 U	1 U	Ecology 1999b
PW-5	28-Apr-98			ug/l	11	1 U	1 U	Ecology 1999b
PW-5	22-Jul-98			ug/l	7.9	1 U	1 U	Ecology 1999b
PW-5	28-Dec-98			ug/l	4.7	2 U	1 U	Ecology 2001
PW-5	26-Jan-99			ug/l	7.1	1 U	1 U	Ecology 2000
PW-5	09-Jul-99			ug/l	5.9	2 U	1 U	Ecology 2000
PW-5	08-Nov-01			ug/l	4.7	1 U	1 U	E&E 2002
PW-5	06-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-5	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-5	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-6	01-Oct-93			ug/l	U			Ecology 1999b
PW-6	25-Jun-96			ug/l	U			Ecology 1999b
PW-6	17-Feb-99			ug/l	0.24 J	2 U	1 UJ	Ecology 2000

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
PW-6	17-Feb-99			ug/l	1 U	2 U	1 UJ	Ecology 2000
PW-6	07-Jul-99			ug/l	1 U	2 U	1 U	Ecology 2000
PW-6	09-Jul-99			ug/l	1 U	2 U	1 U	Ecology 2000
PW-6	30-Jan-01			ug/l	2	1 U	1U	E&E 2001
PW-6	08-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-6	06-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-6	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-7	01-Oct-93			ug/l	572			Ecology 1999b
PW-7	04-Mar-97			ug/l	570 D	3 U	3 U	SAIC 1997
PW-7	10-Oct-97			ug/l	613	5 U	5 U	Ecology 1999b
PW-7	29-Jan-98			ug/l	708			Ecology 1999b
PW-7	29-Jan-98			ug/l		0.89 J	1 U	Ecology 1999b
PW-7	28-Apr-98			ug/l	762	0.81 J	1 U	Ecology 1999b
PW-7	23-Jul-98			ug/l	540	1 U	1 U	Ecology 1999b
PW-7	31-May-01			ug/l	710			E&E 2002
PW-7	01-Nov-01			ug/l	980	10 U	10 U	E&E 2002
PW-7	07-Aug-02			ug/l	540	20	32	Farallon 2003
PW-7	21-Aug-02			ug/l	380	38	43	Farallon 2003
PW-7	14-Nov-02			ug/l	430	36	32	Farallon 2003
PW-7	12-Nov-03			ug/l	140	81	95	Farallon 2004
PW-8	25-Jun-96			ug/l	U			Ecology 1999b
PW-8	04-Feb-99			ug/l	1 U	2 U	1 U	Ecology 2000
PW-8	01-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-8	06-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-8	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-9	01-Mar-94			ug/l	2165			Ecology 1999b
PW-9	01-Jun-96			ug/l	3009			Ecology 1999b
PW-9	11-Apr-97			ug/l	2700	37	14 J	SAIC 1997
PW-9	08-Oct-97			ug/l	3740	12	8	Ecology 1999b
PW-9	20-Jan-99			ug/l	2540	200 U	42 J	Ecology 2000
PW-9	14-Apr-99			ug/l	2800	9.8	11 J	Ecology 2001
PW-9	02-Jun-99			ug/l	1460	9.2	20	Ecology 2001
PW-9	28-Jul-99			ug/l	2170	1000 U	500 U	Ecology 2000
PW-9	02-Feb-00			ug/l	2340	400 U	200 U	Ecology 2001
PW-9	11-May-00			ug/l	2760	400 U	200 U	Ecology 2001
PW-9	22-Jun-00			ug/l	3350	400 U	200 U	Ecology 2001
PW-9	24-Aug-00			ug/l	2690	1000 U	500 U	Ecology 2001
PW-9	29-Aug-00			ug/l	2100	7	8	E&E 2000
PW-9	29-Aug-00			ug/l		100 U	100 U	E&E 2000
PW-9	12-Oct-00			ug/l	2830	200 U	200 U	Ecology 2001
PW-9	30-Jan-01			ug/l	2700	100 U	100 U	E&E 2001
PW-9	01-Feb-01			ug/l	2640	100 U	100 U	Ecology 2001
PW-9	26-Apr-01			ug/l	2920	200 U	13 J	Ecology 2001
PW-9	02-Nov-01			ug/l	2600	20 U	21	E&E 2002
PW-9	06-Aug-02			ug/l	460	9.5	10	Farallon 2003
PW-9	06-Aug-02			ug/l	2400	9.6	10	Farallon 2003
PW-9	19-Nov-02			ug/l	2000	26	49	Farallon 2003
PW-9	19-Nov-02			ug/l	1800	24	49	Farallon 2003
PW-9	12-Feb-03			ug/l	2100	20 U	24	Farallon 2004
PW-9	12-Feb-03			ug/l	2100	20 U	26	Farallon 2004
PW-9	13-Nov-03			ug/l	2500	21	31	Farallon 2004
PW-10	01-Oct-93			ug/l	U			Ecology 1999b
PW-10	25-Jun-96			ug/l	U			Ecology 1999b
PW-11	01-Oct-93			ug/l	U			Ecology 1999b
PW-12	01-Oct-93			ug/l	U			Ecology 1999b
PW-13	01-Oct-93			ug/l	U			Ecology 1999b
PW-14	01-Oct-93			ug/l	U			Ecology 1999b
PW-14	07-Oct-97			ug/l	0.5 U	0.5 U	0.5 U	Ecology 2001
PW-14	06-Aug-00			ug/l	1U			E&E 2000
PW-15	01-Oct-93			ug/l	U			Ecology 1999b
PW-16	10-Mar-94			ug/l	U			Ecology 1999b

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
PW-16	17-Feb-99			ug/l	0.22 J	2 U	1 UJ	Ecology 2000
PW-16	01-Feb-00			ug/l	1 U	2 U	1 U	Ecology 2001
PW-16	07-Sep-00			ug/l	0.46 J	2 U	1 U	Ecology 2001
PW-16	31-May-01			ug/l	1U			E&E 2002
PW-16	02-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-17	10-Mar-94			ug/l	U			Ecology 1999b
PW-17	17-Feb-99			ug/l	1 U	2 U	1 UJ	Ecology 2000
PW-17	01-Feb-00			ug/l	1 U	2 U	1 U	Ecology 2001
PW-17	07-Sep-00			ug/l	1 U	2 U	1 U	Ecology 2001
PW-17	31-May-01			ug/l	1U			E&E 2002
PW-17	06-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-18	10-Mar-94			ug/l	U			Ecology 1999b
PW-19	04-Feb-99			ug/l	1 U	2 U	1 U	Ecology 2000
PW-19	01-Feb-00			ug/l	1 U	2 U	1 U	Ecology 2001
PW-19	07-Sep-00			ug/l	1 U	2 U	1 U	Ecology 2001
PW-20	02-Feb-99			ug/l	2.2	2 U	1 U	Ecology 2000
PW-20	01-Feb-00			ug/l	3.4	2 U	1 U	Ecology 2001
PW-20	07-Sep-00			ug/l	3.3	2 U	1 U	Ecology 2001
PW-20	31-Jan-01			ug/l	1 U	1 U	1 U	E&E 2001
PW-21	10-Mar-99			ug/l	1 U	2 U	1 U	Ecology 2001
PW-21	31-May-01			ug/l	4			E&E 2002
PW-21	02-Nov-01			ug/l	4.6	1 U	1 U	E&E 2002
PW-21	07-Aug-02			ug/l	5.3 B	0.2 U	0.2 U	Farallon 2003
PW-21	22-Aug-02			ug/l	4.8	0.2 U	0.2 U	Farallon 2003
PW-21	11-Nov-02			ug/l	4.7	0.2 U	0.2 U	Farallon 2003
PW-21	10-Jul-07			ug/l	5.3	1 U	1 U	Parametrix 2007
PW-22	31-May-01			ug/l	1U			E&E 2002
PW-22	02-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-23	02-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-23	06-Aug-02			ug/l	0.73	0.2 U	0.2 U	Farallon 2003
PW-23	13-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-24	02-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-24	11-Nov-03			ug/l	6.1	0.2 U	0.2 U	Farallon 2004
PW-25	01-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-26	06-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-26	07-Aug-02			ug/l	0.64 B	0.2 U	0.2 U	Farallon 2003
PW-26	22-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-26	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-26	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-26	10-Jul-07			ug/l	1 U	1 U	1 U	Parametrix 2007
PW-27	01-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-28	01-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-29	06-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-30	06-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-31	07-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-32	06-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-32	07-Aug-02			ug/l	0.67 B	0.2 U	0.2 U	Farallon 2003
PW-32	22-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-32	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-32	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-32	10-Jul-07			ug/l	1 U	1 U	1 U	Parametrix 2007
PW-33	05-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-33	10-Jul-07			ug/l	1 U	1 U	1 U	Parametrix 2007
PW-34	05-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-34	07-Aug-02			ug/l	0.55 B	0.2 U	0.2 U	Farallon 2003
PW-34	22-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-34	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-34	11-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-34	10-Jul-07			ug/l	1 U	1 U	1 U	Parametrix 2007
PW-35	05-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-35	10-Jul-07			ug/l	1 U	1 U	1 U	Parametrix 2007

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
PW-36	16-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-36	07-Aug-02			ug/l	0.76 B	0.2 U	0.2 U	Farallon 2003
PW-36	22-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-37	07-Nov-01			ug/l	1 U	1 U	1 U	E&E 2002
PW-37	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-37	10-Jul-07			ug/l	1 U	1 U	1 U	Parametrix 2007
PW-38	07-Aug-02			ug/l	0.82 B	0.2 U	0.2 U	Farallon 2003
PW-38	22-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-38	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-38	12-Nov-03			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
PW-39	07-Aug-02			ug/l	0.5 B	0.2 U	0.2 U	Farallon 2003
PW-39	22-Aug-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
PW-39	11-Nov-02			ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-1	09-Jul-02	18		ug/l	400	2 U	2 U	Farallon 2003
RS-1	09-Jul-02	30		ug/l	260	2 U	2 U	Farallon 2003
RS-1	09-Jul-02	46		ug/l	84	0.4 U	0.4 U	Farallon 2003
RS-2	10-Jul-02	18		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-2	10-Jul-02	30		ug/l	120	1 U	1 U	Farallon 2003
RS-2	10-Jul-02	44		ug/l	72	0.4 U	0.4 U	Farallon 2003
RS-3	10-Jul-02	18		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-3	11-Jul-02	30		ug/l	300	2 U	2 U	Farallon 2003
RS-3	11-Jul-02	43		ug/l	290	2 U	2 U	Farallon 2003
RS-4	16-Jul-02	21		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-4	16-Jul-02	35		ug/l	2.3	0.2 U	0.2 U	Farallon 2003
RS-4	16-Jul-02	46		ug/l	1.8	0.2 U	0.2 U	Farallon 2003
RS-5	11-Jul-02	18		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-5	11-Jul-02	31		ug/l	77	0.4 U	0.4 U	Farallon 2003
RS-5	11-Jul-02	47		ug/l	31	2 U	2 U	Farallon 2003
RS-6	15-Jul-02	20		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-6	15-Jul-02	32		ug/l	710	4 U	4 U	Farallon 2003
RS-6	15-Jul-02	47		ug/l	730	4 U	4 U	Farallon 2003
RS-7	16-Jul-02	24		ug/l	2400	20 U	20 U	Farallon 2003
RS-7	16-Jul-02	38		ug/l	960	10 U	10 U	Farallon 2003
RS-7	16-Jul-02	46		ug/l	990	10 U	10 U	Farallon 2003
RS-8	24-Jun-02	14		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-8	24-Jun-02	32		ug/l	2.2	1 U	71	Farallon 2003
RS-8	25-Jun-02	43		ug/l	29	0.2 U	17	Farallon 2003
RS-9	11-Jul-02	20		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-9	11-Jul-02	33.5		ug/l	250	2 U	2 U	Farallon 2003
RS-9	12-Jul-02	47		ug/l	250	2 U	2 U	Farallon 2003
RS-10	09-Jul-02	18		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-10	09-Jul-02	30		ug/l	320	2 U	2 U	Farallon 2003
RS-10	09-Jul-02	43		ug/l	490	4 U	4 U	Farallon 2003
RS-10	09-Jul-02	43		ug/l	440	4 U	4 U	Farallon 2003
RS-11	12-Jul-02	17		ug/l	310	2 U	2 U	Farallon 2003
RS-11	15-Jul-02	35		ug/l	880	4 U	4 U	Farallon 2003
RS-11	15-Jul-02	45		ug/l	750	4 U	4 U	Farallon 2003
RS-12	12-Jul-02	17		ug/l	1200	10 U	10 U	Farallon 2003
RS-12	12-Jul-02	31		ug/l	1400	10 U	10 U	Farallon 2003
RS-12	12-Jul-02	42		ug/l	1400	10 U	10 U	Farallon 2003
RS-13	10-Jul-02	12		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-13	11-Jul-02	30		ug/l	1.9	0.2 U	5.8	Farallon 2003
RS-13	11-Jul-02	44		ug/l	3.3	0.2 U	5.7	Farallon 2003
RS-14	09-Jul-02	18		ug/l	1.5	0.2 U	1.2	Farallon 2003
RS-14	10-Jul-02	30		ug/l	69	0.4 U	7.6	Farallon 2003
RS-14	10-Jul-02	42		ug/l	67	0.4 U	5.8	Farallon 2003
RS-15A	26-Jun-02	15		ug/l	10	0.47	0.2 U	Farallon 2003
RS-15A	26-Jun-02	32		ug/l	1100	10 U	10 U	Farallon 2003
RS-15A	26-Jun-02	43		ug/l	1300	10 U	10 U	Farallon 2003
RS-16	01-Jul-02	13.5		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-16	01-Jul-02	35		ug/l	420	4 U	4 U	Farallon 2003

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
RS-16	02-Jul-02	42		ug/l	620	4 U	4 U	Farallon 2003
RS-17	25-Jun-02	15		ug/l	1200	10 U	10 U	Farallon 2003
RS-17	25-Jun-02	32		ug/l	1200	10 U	10 U	Farallon 2003
RS-17A	25-Jun-02	40		ug/l	1400	10 U	10 U	Farallon 2003
RS-18	08-Jul-02	17		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-18	08-Jul-02	29		ug/l	640	4 U	4 U	Farallon 2003
RS-18	09-Jul-02	44		ug/l	560	4.5	4 U	Farallon 2003
RS-19	03-Jul-02	19		ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
RS-19	03-Jul-02	30		ug/l	15	0.2 U	0.2 U	Farallon 2003
RS-19A	08-Jul-02	44		ug/l	260	2.5	2 U	Farallon 2003
RS-20	02-Jul-02	30		ug/l	840	4 U	4 U	Farallon 2003
RS-20	02-Jul-02	30		ug/l	890	4 U	4 U	Farallon 2003
RS-20	02-Jul-02	30		ug/l	880	4 U	4 U	Farallon 2003
RS-20	02-Jul-02	38		ug/l	450	4 U	4 U	Farallon 2003
RS-21	26-Jun-02	31.5		ug/l	640	4 U	4 U	Farallon 2003
RS-21	26-Jun-02	39		ug/l	380	2 U	2 U	Farallon 2003
RS-22	27-Jun-02	29		ug/l	9.6	0.2 U	0.2 U	Farallon 2003
RS-22	27-Jun-02	38.5		ug/l	7.9	0.2 U	0.2 U	Farallon 2003
RS-23A	28-Jun-02	30.5		ug/l	16	0.2 U	0.2 U	Farallon 2003
RS-23A	28-Jun-02	39		ug/l	14	0.2 U	0.2 U	Farallon 2003
RS-24	17-Jul-02	17		ug/l	12	0.2 U	0.2 U	Farallon 2003
RS-24	17-Jul-02	30.5		ug/l	150	1 U	1 U	Farallon 2003
RS-24	17-Jul-02	44.5		ug/l	150	1 U	1 U	Farallon 2003
RS-30	04-Sep-03	18.5		ug/l	2000	20 U	20 U	Farallon 2004
RS-30	04-Sep-03	18.5		ug/l	1900	20 U	20 U	Farallon 2004
RS-30	04-Sep-03	26	31	ug/l	2000	20 U	20 U	Farallon 2004
RS-30	04-Sep-03	42.5	42.5	ug/l	1300	20 U	20 U	Farallon 2004
RS-31	03-Sep-03	18	18	ug/l	1700	4.2	0.82	Farallon 2004
RS-31	03-Sep-03	31	31	ug/l	1100	5.1	1.1	Farallon 2004
RS-31	03-Sep-03	45	45	ug/l	1100	4.5	0.74	Farallon 2004
RS-33	05-Sep-03	18.5	18.5	ug/l	1400	20 U	20 U	Farallon 2004
RS-33	05-Sep-03	31	31	ug/l	1500	20 U	20 U	Farallon 2004
RS-33	05-Sep-03	43.5	43.5	ug/l	980	20 U	20 U	Farallon 2004
RS-41	25-Aug-03	12	12	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-41	25-Aug-03	28.5	28.5	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-41	25-Aug-03	36.5	36.5	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-42	26-Aug-03	13.5	13.5	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-42	26-Aug-03	13.5	13.5	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-42	26-Aug-03	31	31	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-42	26-Aug-03	34.5	34.5	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-43	27-Aug-03	14	14	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-43	27-Aug-03	23	23	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-43	27-Aug-03	35	35	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
RS-46	13-Apr-04	22	22	ug/l	1.1	0.2 U	0.2 U	Farallon 2004
RS-46	13-Apr-04	28	28	ug/l	200	2 U	2 U	Farallon 2004
RS-46	13-Apr-04	32.5	32.5	ug/l	1000	10 U	10 U	Farallon 2004
RS-46	13-Apr-04	40	40	ug/l	1000	10 U	10 U	Farallon 2004
RS-46	13-Apr-04	44.5	44.5	ug/l	1200	10 U	10 U	Farallon 2004
RS-47	17-Jun-04	16.5	16.5	ug/l	0.42	0.2 U	0.2 U	Farallon 2004
RS-47	17-Jun-04	29.5	29.5	ug/l	1.7	0.2 U	0.2 U	Farallon 2004
RS-47	17-Jun-04	39	39	ug/l	0.69	0.2 U	0.2 U	Farallon 2004
RS-48	16-Jun-04	16	16	ug/l	630	4 U	4 U	Farallon 2004
RS-48	16-Jun-04	27.5	27.5	ug/l	280	2 U	2 U	Farallon 2004
RS-48	16-Jun-04	40	40	ug/l	21	0.2 U	0.2 U	Farallon 2004
RS-49	15-Jun-04	15	15	ug/l	270	3.6	2 U	Farallon 2004
RS-49	15-Jun-04	27	27	ug/l	910	10 U	10 U	Farallon 2004
RS-49	15-Jun-04	40	40	ug/l	330	2 U	2 U	Farallon 2004
SG1-12	20-Nov-02	17	20	ug/l	39	0.4 U	0.4 U	Farallon 2003
SG1-13	20-Nov-02	18	21	ug/l	130	1 U	1 U	Farallon 2003
SG1-20	20-Nov-02	18	21	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
SG2-8	20-Nov-02	18	21	ug/l	340	2 U	2 U	Farallon 2003

Table 2-3. Groundwater Analytical Results for PCE, TCE and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
SG2-9	20-Nov-02	18	21	ug/l	780	4 U	4 U	Farallon 2003
SG2-15	20-Nov-02	18	21	ug/l	1500	10 U	10 U	Farallon 2003
SP-1	12-Aug-99	15		ug/l	117	1 U	1 U	GeoEngineers 2001
SP-1	12-Aug-99	40		ug/l	726	1	1 U	GeoEngineers 2001
SP-2	12-Aug-99	15		ug/l	36	1 U	1 U	GeoEngineers 2001
SP-2	12-Aug-99	40		ug/l	762	1 U	1 U	GeoEngineers 2001
SP-3	12-Aug-99	15		ug/l	913	1 U	1 U	GeoEngineers 2001
SP-3	12-Aug-99	40		ug/l	941	1 U	1 U	GeoEngineers 2001
SP-4	18-Aug-99	15		ug/l	721	1 U	1 U	GeoEngineers 2001
SP-4	18-Aug-99	40		ug/l	1170	1	1 U	GeoEngineers 2001
SP-5	18-Aug-99	15		ug/l	1 U	1 U	1 U	GeoEngineers 2001
SP-5	18-Aug-99	40		ug/l	167	1 U	1 U	GeoEngineers 2001
SP-6	18-Aug-99	15		ug/l	1 U	1 U	101	GeoEngineers 2001
SP-6	18-Aug-99	40		ug/l	1	1 U	1	GeoEngineers 2001
SP-7	18-Aug-99	15		ug/l	1 U	1 U	1 U	GeoEngineers 2001
SP-7	18-Aug-99	40		ug/l	3	1 U	1 U	GeoEngineers 2001
SP-8	18-Aug-99	15		ug/l	1 U	1 U	700	GeoEngineers 2001
SP-8	18-Aug-99	40		ug/l	55	1	4	GeoEngineers 2001

Notes:
a) Analyzed by EPA Method 8260
b) Analyzed by Field Analytical Support Project (FASP) Method 038 - on-site field screening method for analytes
ft - feet
PCE - tetrachloroethene
TCE - trichloroethene
cis-1,2-DCE - cis-1,2-dichloroethene
µg/L - microgram per liter
U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit
J - analyte detected but value is an estimated quantity

Table 2-4. Surface Water Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Units	PCE	TCE	cis-1,2-DCE	Reference
CS-1	10-Jul-07	ug/l	1.7	1 U	1 U	Parametrix 2007
CS-2	10-Jul-07	ug/l	3.6	1 U	1 U	Parametrix 2007
SW-1	29-Apr-98	ug/l	16	0.98J	1.2	Ecology 1999b
SW-1	23-Jul-98	ug/l	8.5	1 U	2.3	Ecology 1999b
SW-2	23-Jul-98	ug/l	9.8	1 U	2.7	Ecology 1999b
SW-3	23-Jul-98	ug/l	15	1 U	4	Ecology 1999b
SW-4	28-Dec-98	ug/l	1U	2U	1U	Ecology 1999b
SW-5	18-Jul-02	ug/l	0.66	0.23	0.62	Farallon 2003
SW-5	21-Nov-02	ug/l	40	0.2 U	0.2 U	Farallon 2003
SW-5	21-Nov-02	ug/l	20	0.2 U	0.2 U	Farallon 2003
SW-5	4-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
SW-5	17-Nov-03	ug/l	0.22	0.2 U	0.2 U	Farallon 2004
SW-6	18-Jul-02	ug/l	0.62	0.27	0.74	Farallon 2003
SW-6	21-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
SW-6	4-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
SW-6	14-Nov-03	ug/l	0.21	0.2 U	0.2 U	Farallon 2004
SW-7	18-Jul-02	ug/l	0.82	0.31	1.3	Farallon 2003
SW-7	21-Nov-02	ug/l	12	0.2 U	0.2 U	Farallon 2003
SW-7	4-Feb-03	ug/l	0.53	0.2 U	0.2 U	Farallon 2004
SW-7	14-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
SW-8	18-Jul-02	ug/l	0.6	0.25	1	Farallon 2003
SW-8	22-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
SW-8	4-Feb-03	ug/l	0.67	0.2 U	0.2 U	Farallon 2004
SW-8	14-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
SW-9	18-Jul-02	ug/l	0.42	0.2 U	0.69	Farallon 2003
SW-9	18-Jul-02	ug/l	0.44	0.2 U	0.66	Farallon 2003
SW-9	22-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
SW-9	5-Feb-03	ug/l	1	0.2 U	0.2 U	Farallon 2004
SW-9	5-Feb-03	ug/l	0.96	0.2 U	0.2 U	Farallon 2004
SW-9	17-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2004
SW-10	19-Jul-02	ug/l	0.41	0.2 U	0.3	Farallon 2003
SW-10	20-Aug-02	ug/l	0.21	0.2 U	0.2 U	Farallon 2003
SW-10	21-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	Farallon 2003
SW-10	5-Feb-03	ug/l	0.85	0.2 U	0.2 U	Farallon 2004

Notes:
PCE - tetrachloroethene
TCE - trichloroethene
cis-1,2-DCE - cis-1,2-dichloroethene
µg/L - microgram per liter
U - analyte not detected at given detection limit
J - analyte detected but value is an estimated quantity

Table 2-5. Creek Sediment/Soil Analytical Results for PCE, TCE, and cis-1,2-DCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	cis-1,2-DCE	Reference
BS-451	15-Aug-03	2	3	mg/kg	0.0341 U			URS 2004
BS-452	15-Aug-03	2	3	mg/kg	0.0304 U			URS 2004
BS-453	15-Aug-03	2	3	mg/kg	0.0254 U			URS 2004
BS-454	15-Aug-03	2	3	mg/kg	0.0272 U			URS 2004
BS-455	19-Aug-03	2	3	mg/kg	0.0224 U			URS 2004
BS-456	19-Aug-03	2	3	mg/kg	0.03 U			URS 2004
BS-457	22-Aug-03	2	3	mg/kg	0.0316			URS 2004
BS-458	22-Aug-03	2	3	mg/kg	0.0278			URS 2004
BS-459	22-Aug-03	2	3	mg/kg	0.0221 U			URS 2004
BS-460	22-Aug-03	2	3	mg/kg	0.0159 U			URS 2004
BS-461	22-Aug-03	2	3	mg/kg	0.0116 U			URS 2004
BS-462	26-Aug-03	2	3	mg/kg	0.118			URS 2004
BS-463	26-Aug-03	2	3	mg/kg	0.0214 U			URS 2004
BS-464	26-Aug-03	2	3	mg/kg	0.0161 U			URS 2004
BS-465	26-Aug-03	2	3	mg/kg	0.0327 UJ			URS 2004
BS-466	26-Aug-03	2	3	mg/kg	0.0405 U			URS 2004
BS-467	27-Aug-03	2	3	mg/kg	0.0252 U			URS 2004
BS-468	27-Aug-03	2	3	mg/kg	0.0223 U			URS 2004
BS-469	27-Aug-03	2	3	mg/kg	0.01 U			URS 2004
BS-470	27-Aug-03	2	3	mg/kg	0.0183 U			URS 2004
CC-1	02-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-2	02-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-3	02-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-4	02-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-5	04-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-6	04-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-7	04-Sep-03	1	1	mg/kg	0.0012 U	0.0012 U	0.0012 U	Farallon 2004
CC-8	04-Sep-03	0	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
CC-9	04-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	Farallon 2004
SB-400	12-Aug-03	0.25	1	mg/kg	8.7			URS 2004
SB-401	12-Aug-03	0	1	mg/kg	25.5			URS 2004
SB-402	12-Aug-03	0	1	mg/kg	28.3			URS 2004
SB-403	12-Aug-03	0.33	1	mg/kg	0.0887			URS 2004
SB-404	12-Aug-03	0	1	mg/kg	0.0201			URS 2004
SB-405	12-Aug-03	0	1	mg/kg	0.0117 U			URS 2004
SB-406	12-Aug-03	0.25	1	mg/kg	0.0099 U			URS 2004
SB-407	13-Aug-03	0	1	mg/kg	0.0237			URS 2004
SB-408	13-Aug-03	0.2	1	mg/kg	0.0142			URS 2004
SB-409	13-Aug-03	0.5	1	mg/kg	5220			URS 2004
SB-410	13-Aug-03	0.5	1	mg/kg	1650			URS 2004
SB-411	13-Aug-03	0.2	1	mg/kg	685			URS 2004
SB-412	14-Aug-03	0	1	mg/kg	0.0187			URS 2004
SB-413	14-Aug-03	0	1	mg/kg	0.0071 U			URS 2004
SB-414	14-Aug-03	0	1	mg/kg	0.0065 U			URS 2004
SB-415	14-Aug-03	0	1	mg/kg	0.0986			URS 2004
SB-416	14-Aug-03	0	1	mg/kg	0.0135 U			URS 2004
SB-417	15-Aug-03	0	1	mg/kg	1.29			URS 2004
SB-419	03-Sep-03	1	3	mg/kg	0.0197 U			URS 2004

Notes:

PCE - tetrachloroethene
TCE - trichloroethene
cis-1,2-DCE - cis-1,2-dichloroethene

ft - feet
mg/kg - milligram per kilogram

U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit

Table 2-6. Soil Gas Analytical Results for PCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	Reference
SG1-1	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-2	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-3	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-4	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-5	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-6	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-7	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-8	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-9	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-10	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-12	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-13	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-14	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG1-20	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-1	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-2	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-3	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-4	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-5	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-6	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-8	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-9	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG2-15	Nov-02	5	5	PPM	<0.02	<0.02	Farallon 2003
SG-200	12-Aug-03	3	3	PPM	1 J	-	URS 2004
SG-201	12-Aug-03	4	4	PPM	0.0006 U	-	URS 2004
SG-202	12-Aug-03	10	10	PPM	0.19 J	-	URS 2004
SG-203	12-Aug-03	4	4	PPM	0.003 UJ	-	URS 2004
SG-204	13-Aug-03	10	10	PPM	4	-	URS 2004
SG-205	13-Aug-03	7	7	PPM	18	-	URS 2004
SG-207	13-Aug-03	4	4	PPM	0.06 U	-	URS 2004
SG-208	13-Aug-03	4	4	PPM	1.8	-	URS 2004
SG-209	13-Aug-03	4	4	PPM	3.2	-	URS 2004
SG-211	13-Aug-03	4	4	PPM	0.36	-	URS 2004
SG-212	13-Aug-03	4	4	PPM	0.074	-	URS 2004
SG-213	13-Aug-03	4	4	PPM	0.091	-	URS 2004
SG-214	13-Aug-03	4	4	PPM	0.081	-	URS 2004
SG-215	13-Aug-03	4	4	PPM	0.074	-	URS 2004
SG-216	14-Aug-03	5	5	PPM	0.059	-	URS 2004
SG-217	14-Aug-03	4	4	PPM	0.041	-	URS 2004
SG-218	14-Aug-03	4	4	PPM	0.05	-	URS 2004
SG-219	14-Aug-03	4	4	PPM	0.021	-	URS 2004
SG-220	14-Aug-03	4	4	PPM	0.018	-	URS 2004
SG-221	14-Aug-03	4	4	PPM	0.021	-	URS 2004
SG-222	14-Aug-03	4	4	PPM	0.016	-	URS 2004
SG-223	14-Aug-03	4	4	PPM	0.049	-	URS 2004
SG-224	14-Aug-03	4	4	PPM	0.044	-	URS 2004
SG-225	14-Aug-03	4	4	PPM	0.04	-	URS 2004
SG-226	14-Aug-03	4	4	PPM	0.024	-	URS 2004
SG-227	14-Aug-03	4	4	PPM	0.024	-	URS 2004
SG-228	15-Aug-03	4	4	PPM	0.006	-	URS 2004
SG-229	15-Aug-03	4	4	PPM	0.082	-	URS 2004
SG-230	15-Aug-03	4	4	PPM	0.006	-	URS 2004
SG-231	15-Aug-03	4	4	PPM	0.018	-	URS 2004
SG-232	15-Aug-03	4	4	PPM	0.006	-	URS 2004

Table 2-6. Soil Gas Analytical Results for PCE

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	PCE	TCE	Reference
SG-233	15-Aug-03	4	4	PPM	0.025	-	URS 2004
SG-234	15-Aug-03	4	4	PPM	0.066	-	URS 2004
SG-235	15-Aug-03	4	4	PPM	0.062	-	URS 2004
SG-236	15-Aug-03	4	4	PPM	0.006	-	URS 2004

Notes:
ft - feet
PCE - tetrachloroethene
TCE - trichloroethene
PPM - part per million by volume
U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit
J - analyte detected but value is an estimated quantity

Table 2-7. Vapor Intrusion Monitoring Locations

Sample #	Location	Location ID	Sample Type	Comment
42753	328 Hamilton Rd N- Chehalis Livestock Auction Building	Unit 001	Sub Slab	
42754		Unit 001	Indoor Air	Storage Room
42755		Unit 001	Indoor Air	Front Desk
42784		Unit 010	Ambient 5	Fence near Livestock Auction
42756	281 N. Hamilton Rd - United Rentals	Unit 002 A	Indoor Air	Main Building
42758		Unit 002 B	Sub Slab	Paint Shop
42759		Unit 002 B	Indoor Air	Paint Shop
42757		Unit 002	Ambient 1	South Corner of Lot
42760	2377 Rice Rd - Giske Imaging	Unit 003	Indoor Air	
42761		Unit 003	Crawlspace	
42762	169 LaBree Rd - Thurman	Unit 004	Indoor Air	
42764		Unit 004	Crawlspace	
42763		Unit 004	IA Co.	
42765		Unit 004	Crawlspace Co.	
42766		Unit 004	Ambient 2	Small Creek Near Residence
42767	2364 Rice Rd	Unit 005	Sub Slab	
42768		Unit 005	Crawlspace	
42769		Unit 005	Indoor Air	
42770		Unit 005	Ambient 3	
42771	210 LaBree Rd	Unit 006	Indoor Air	
42772		Unit 006	Crawlspace	
42773	228 LaBree Rd	Unit 007	Indoor Air	
42774		Unit 007	Crawlspace	
42786		Unit 007	Ambient 7	On Back Deck
42775	164 LaBree Rd	Unit 008	Indoor Air	
42776		Unit 008	Crawlspace	
42777	0 Hamilton Rd - Building C	Unit 009	Sub Slab	
42778		Unit 009	Indoor Air	
42779		Unit 009	Ambient 4	On Fence Near Building C
42780	151 LaBree Rd - Building B - Bulldog Trailer	Unit 010 Office	Sub Slab	
42781		Unit 010 Office	Indoor Air	
42782		Unit 010	Indoor Air	Main Bay
42783		Unit 010	Sub Slab	Main Bay
42785		Unit 010	Ambient 6	Near the Entrance

Table 2-8. Vapor Intrusion Monitoring for All VOCs

Sample No.	Sample Location	Sample Sublocation	Date Sampled	Units	PCE	TCE	cis-1,2-DCE	1,1-DCE	trans-1,2-DCE	Methylene Chloride	Vinyl Chloride	Reference
42757	Ambient 1	Unit 002	15-Nov-07	µg/m3	0.14	0.099	0.032 U	0.032 U	0.032 U	0.2		EPA 2007
42766	Ambient 2	Unit 004	15-Nov-07	µg/m3	0.23	0.11	0.033 U	0.033 U	0.033 U	0.19		EPA 2007
42770	Ambient 3	Unit 005	15-Nov-07	µg/m3	0.1	0.086	0.032 U	0.032 U	0.032 U	0.18		EPA 2007
42779	Ambient 4	Unit 009	15-Nov-07	µg/m3	0.078	0.033 U	0.033 U	0.033 U	0.033 U	0.17		EPA 2007
42784	Ambient 5	Unit 010	15-Nov-07	µg/m3	0.086	0.033 U	0.033 U	0.033 U	0.033 U	0.17		EPA 2007
42785	Ambient 6	Unit 010	15-Nov-07	µg/m3	0.16	0.041	0.034 U	0.034 U	0.034 U	0.18		EPA 2007
42786	Ambient 7	Unit 007	15-Nov-07	µg/m3	0.19	0.21	0.030 U	0.030 U	0.030 U	0.44		EPA 2007
42753	Unit 001	Sub Slab	15-Nov-07	µg/m3	0.17	0.091	0.033 U	0.033 U	0.033 U	0.13 U		EPA 2007
42754	Unit 001	Indoor Air	15-Nov-07	µg/m3	0.14	0.12	0.033 U	0.033 U	0.033 U	0.19		EPA 2007
42755	Unit 001	Indoor Air	15-Nov-07	µg/m3	0.13	0.087	0.033 U	0.033 U	0.033 U	0.19		EPA 2007
42756	Unit 002 A	Indoor Air	15-Nov-07	µg/m3	0.21	0.29	0.034 U	0.034 U	0.034 U	0.38		EPA 2007
42758	Unit 002 B	Sub Slab	15-Nov-07	µg/m3	25	0.12	0.033 U	0.033 U	0.033 U	0.13 U		EPA 2007
42759	Unit 002 B	Indoor Air	15-Nov-07	µg/m3	0.14	0.077	0.032 U	0.032 U	0.032 U	0.23		EPA 2007
42760	Unit 003	Indoor Air	15-Nov-07	µg/m3	0.11	0.076	0.032 U	0.032 U	0.032 U	0.24		EPA 2007
42761	Unit 003	Crawlspace	15-Nov-07	µg/m3	0.089	0.13	0.033 U	0.033 U	0.033 U	0.18		EPA 2007
42762	Unit 004	Indoor Air	15-Nov-07	µg/m3	0.16	0.067	0.033 U	0.18	0.033 U	0.22		EPA 2007
42763	Unit 004	Indoor Air Co.	15-Nov-07	µg/m3	0.16	0.089	0.035 U	0.16	0.035 U	0.22		EPA 2007
42764	Unit 004	Crawlspace	15-Nov-07	µg/m3	0.12	0.071	0.036 U	0.036 U	0.036 U	0.17		EPA 2007
42765	Unit 004	Crawlspace Co.	15-Nov-07	µg/m3	0.14	0.11	0.032 U	0.032 U	0.032 U	0.18		EPA 2007
42767	Unit 005	Sub Slab	15-Nov-07	µg/m3	0.19	0.053	0.032 U	0.032 U	0.032 U	0.75		EPA 2007
42768	Unit 005	Crawlspace	15-Nov-07	µg/m3	0.81	0.11	0.034 U	0.034 U	0.034 U	19		EPA 2007
42769	Unit 005	Indoor Air	15-Nov-07	µg/m3	0.58	0.12	0.032 U	0.032 U	0.032 U	11		EPA 2007
42771	Unit 006	Indoor Air	15-Nov-07	µg/m3	0.087	0.086	0.032 U	0.032 U	0.032 U	0.62		EPA 2007
42772	Unit 006	Crawlspace	15-Nov-07	µg/m3	0.063	0.034 U	0.034 U	0.034 U	0.034 U	0.16		EPA 2007
42773	Unit 007	Indoor Air	15-Nov-07	µg/m3	0.18	0.12	0.033 U	0.54	0.033 U	13		EPA 2007
42774	Unit 007	Crawlspace	15-Nov-07	µg/m3	0.086	0.037	0.032 U	0.032 U	0.032 U	1.8		EPA 2007
42775	Unit 008	Indoor Air	15-Nov-07	µg/m3	0.14	0.031	0.031 U	0.031 U	0.031 U	0.18		EPA 2007
42776	Unit 008	Crawlspace	15-Nov-07	µg/m3	0.12	0.034 U	0.034 U	0.034 U	0.034 U	0.17		EPA 2007
42777	Unit 009	Sub Slab	15-Nov-07	µg/m3	0.08	0.033 U	0.033 U	0.033 U	0.033 U	0.13 U		EPA 2007
42778	Unit 009	Indoor Air	15-Nov-07	µg/m3	0.097	0.034 U	0.034 U	0.034 U	0.034 U	0.53		EPA 2007
42782	Unit 010	Indoor Air	15-Nov-07	µg/m3	0.084	0.033 U	0.033 U	0.033 U	0.033 U	0.17		EPA 2007
42783	Unit 010	Sub Slab	15-Nov-07	µg/m3	120	1.2	0.034 U	0.034 U	0.034 U	0.14 U		EPA 2007
42780	Unit 010 Office	Sub Slab	15-Nov-07	µg/m3	70	16	0.37	0.032 U	0.032 U	0.13 U		EPA 2007
42781	Unit 010 Office	Indoor Air	15-Nov-07	µg/m3	0.19	0.043	0.031 U	0.031 U	0.031 U	0.17		EPA 2007

Notes:

PCE - tetrachloroethene

TCE - trichloroethene

cis-1,2-DCE - cis-1,2-dichloroethene

1,1-DCE - 1,1-dichloroethene

trans-1,2-DCE - trans-1,2-dichloroethene

$\mu g/m^3$ - microgram per cubic meter

U - analyte not detected at given detection limit

Table 2-9. Physical Soil Characteristics at the HRIA

Location ID	Depth (ft bgs)	Moisture Content (% wt)	Density (g/cc)		Porosity (%Vb)			Pore Fluid Saturations (% Pv)		Total Organic Carbon (mg/kg)	Effective Permeability to Water (millidarcy)	Effective Hydraulic (cm/s)	Mean Grain Size Description
			Bulk	Grain	Total	Air Filled	Effective	Water	NAPL				
MW-602	5.0	24.7	1.45	2.60	44.3	8.5	7.5	80.9	0.1U	15,800	0.296	2.82E-07	Silt
MW-603	5.5	21.2	1.47	2.64	44.4	13.3	13.9	70.0	0.1U	2,950	0.925	8.81E-07	Medium sand
MW-601	5.5	20.5	1.61	2.61	38.4	5.1	8.7	86.6	0.1	1,400	0.141	1.34E-07	Silt
MW-602	13.0	22.2	1.53	2.64	41.9	8.0	12.9	81.0	0.1U	11,000	1.28	1.21E-06	Silt
MW-605	13.0	18.1	1.64	2.70	39.4	9.4	17.4	76.1	0.1U	<100	38.1	3.62E-05	Gravel
MW-602	15.5	19.9	1.57	2.68	41.6	10.5	19.1	74.9	0.1U	3,400	3.29	3.14E-06	Coarse sand
MW-652	16.0	14.6	1.75	2.71	35.2	9.1	15.6	74.1	0.1U	2,350	9.81	9.31E-06	Gravel
MW-601	16.0	16.8	1.76	2.70	35.1	5.6	17.6	84.2	0.1U	690	15.9	1.51E-05	Gravel
MW-604	16.1	11.6	1.75	2.71	35.6	14.3	22.1	59.9	0.1U	<100	127	1.21E-04	Gravel
MW-606	16.1	17.8	1.74	2.71	35.7	4.6	20.1	86.4	0.8	420	58.3	5.62E-05	Gravel
MW-603	25.7	10.5	1.46	2.68	45.6	30.0	30.1	34.2	0.1U	<100	238	2.25E-04	Medium sand
MW-601	28.5	22.8	1.42	2.67	46.9	14.4	36.0	66.7	2.5	380	0.476	4.58E-07	Medium sand
MW-605	29.0	14.3	1.73	2.72	36.3	11.3	17.6	69.0	0.1U	600	22.1	2.09E-05	Coarse sand
MW-600	29.1	31.6	1.27	2.64	51.8	11.6	33.7	77.6	0.1U	280	182	1.77E-04	Fine sand
MW-602	30.5	24.5	1.44	2.66	46.0	10.7	23.5	76.3	0.5	<100	50.1	4.81E-05	Fine sand
MW-605	37.5	17.2	1.63	2.68	39.1	10.7	14.0	72.0	0.7	760	3.92	3.73E-06	Coarse sand
MW-603	38.0	13.3	1.71	2.73	37.2	14.1	23.0	62.1	0.1U	280	646	6.13E-04	Medium sand
MW-652	38.0	14.0	1.66	2.69	38.5	14.9	16.3	61.3	0.1U	2,200	117	1.11E-04	Gravel
MW-606	42.6	11.0	1.79	2.63	32.1	12.4	21.0	61.5	0.1U	560	32.7	3.12E-05	Gravel
MW-601	43.5	17.5	1.79	2.69	33.3	1.7	11.2	95.0	0.1U	180	471	4.54E-04	Medium sand
MW-603	47.0	41.9	1.12	2.62	57.3	8.2	16.5	85.7	0.1U	4,650	0.599	5.66E-07	Silt
MW-601	47.0	31.9	1.33	2.68	50.5	8.3	7.1	83.6	0.1U	4,300	1.15	1.11E-06	Silt
MW-652	47.5	30.5	1.19	2.61	54.4	17.8	16.7	66.8	0.6	4,750	0.152	1.45E-07	Silt
MW-602	48.5	35.9	1.23	2.60	52.5	8.3	6.6	84.2	0.1U	2,400	0.322	3.08E-07	Silt

Table 2-9. Physical Soil Characteristics at the HRIA

Location ID	Depth (ft bgs)	Moisture Content (% wt)	Density (g/cc)		Porosity (%Vb)			Pore Fluid Saturations (% Pv)		Total Organic Carbon (mg/kg)	Effective Permeability to Water (millidarcy)	Effective Hydraulic (cm/s)	Mean Grain Size Description
			Bulk	Grain	Total	Air Filled	Effective	Water	NAPL				
MW-606	48.6	30.9	1.40	2.60	46.2	2.9	14.0	93.6	0.1U	1,700	1.44	1.40E-06	Silt
MW-605	49.5	29.2	1.38	2.60	47.1	6.4	14.8	86.4	0.1U	1,100	0.511	4.83E-07	Silt
Mean value	0-13 ft	22.1	1.5	2.6	42.3	8.7	10.74	79.6	0.1[a]	7,790	0.700	6.3E-07	Silt cap
Mean value	13-31 ft	18.4	1.6	2.7	40.8	11.9	22.99	70.8	1.3[a]	756	67.7	6.5E-05	Sand/gravel aquifer
Mean value	31-40 ft	14.8	1.7	2.7	38.2	13.2	17.08	65.2	0.7[a]	1,080	256	2.4E-04	Sand/gravel aquifer
Mean value	40-45 ft	14.3	1.8	2.7	32.7	7.0	16.09	78.2	0.1U[a]	370	252	2.4E-04	Sand/gravel aquifer
Mean value	45-50 ft	33.4	1.3	2.6	51.3	8.6	12.62	83.4	0.6[a]	3,150	0.700	6.7E-07	Silt aquitard
											Overall mean:	1.20E-04	Sand/gravel aquifer
											Overall max:	6.13E-04	
											Overall min:	4.58E-07	

Source: URS (2004)

Notes:
Maximum NAPL saturation = 2.5%.
Minimum measurable NAPL saturation = 0.1%.
Overall mean NAPL saturation = 0.9%.
a) Mean values presented for NAPL saturation are the average of the detected saturations only; the numerous non-detect values were not used in calculating the mean.
cm/s = centimeter per second
ft bgs = feet below ground surface at sampling location
g/cc = gram per cubic centimeter
mg/kg = milligram per kilogram
NAPL = nonaqueous-phase liquid
% wt = percent by weight
% Vb = percent of bulk volume
% Pv = percent of pore volume
U = not detected at given detection limit

Table 2-10. Total Metals Analysis for Soil at the HRIA

Metal	Sampling Location/Layer (mg/kg)							
	GP-503/ Silt Cap	MW-602/ Silt Cap	GP-503/ Aquifer	GP-504/ Aquifer	MW-604/ Aquifer	MW-604/ Aquifer	MW-606/ Aquifer	MW-604/ Aquitard
Aluminum	25,900	18,100	25,400	24,400	15,200	13,000	22,800	22,500
Antimony	1.7	6.7	3.75	3.8	6.2	0.7	12.9	7.4
Arsenic	1.8	2.6	1.75	1.8	1.4	1.5	0.9	5.8
Barium	111	163	69.8	77.2	75.7	53.8	62.4	93.5
Beryllium	0.63	0.25	0.56	0.62	0.5	0.495	0.55	0.47
Cadmium	0.015	0.55	0.23	0.26	0.5	0.035	0.44	0.04
Calcium	1,900	2,920	7,510	6,540	5,370	4,190	4,990	3,370
Chromium	22.8	16.1	17.7	14.5	13.5	17.6	27.4	15.6
Cobalt	17.6	10.9	15.9	13.5	12	10.6	18.2	14.8
Copper	17.1	31.8	57.5	44.8	38.3	46.2	50.1	61.2
Iron	20,500	25,300	33,800	34,500	22,400	18,300	25,100	10,400
Lead	6.6	2.8	5.6	5.1	0.97	1.6	0.81	3.7
Magnesium	1,880	3,530	6,580	5,470	4,710	3,990	8,370	3,400
Manganese	462	275	404	538	448	452	588	51.7
Mercury	0.06	0.02	0.055	0.06	0.01	0.015	0.0095	0.02
Nickel	13.8	15.2	18.9	14.4	14.2	14.8	31.6	19.8
Potassium	143	40.65	657	875	472	352	400	339
Selenium	4.25	0.9	4.1	4.15	0.85	0.85	0.6	0.75
Silver	1.2	1.1	1.2	1.2	1.05	1	2.2	1.25
Sodium	91	555	850	271	515	495	540	615
Thallium	1.7	--	0.74	0.88	--	--	--	--
Vanadium	57.5	52.3	96.6	90.8	40.4	32.6	44.6	36.1
Zinc	24.9	31.4	49	57.9	32.2	24.8	39.7	88.7

Source: URS (2004)

mg/kg = milligram per kilogram

Table 2-11. Conventional Chemistry in Groundwater at the HRIA

Well ID	Sulfate (mg/L)	Chloride (mg/L)	Alkalinity, Total (mg/L)	Nitrate/ Nitrite (mg/L)	Total Sulfides (mg/L)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Oxygen-Reduction Potential (mV)	Iron (mg/L)
MW-600	1	7.5	118	0.8	2 U	6.45	0.209	11.7	0.69	12.59	25	0.2 U
MW-601	1.8	5.9	117	1	2 U	6.74	0.198	96.6	2.35	11.83	-9	0.2 U
MW-602	34	9	72	1	2 U	6.50	0.251	151.0	2.80	11.65	-30	0.2 U
MW-603	3	5.6	100	1.1	2 U	6.70	0.195	47.2	2.13	12.03	-63	0.2 U
MW-604	1.4	5.4	101	1	2 U	6.63	0.204	48.5	4.02	13.26	64	0.2 U
MW-605	6.2	1.1	150	0.5	2 U	6.65	0.280	12.3	1.96	13.26	-51	0.2 U
MW-606	13	1	94	1.7	2 U	6.68	0.199	27.1	2.93	12.83	86	0.2 U
MW-607	7.1	1.3	82	1.4	2 U	6.64	0.172	35.7	4.06	13.11	140	0.2 U
MW-608	4.6	1.1	88	1	2 U	6.61	0.164	57.1	3.08	12.71	55	0.2 U
Mean conc.	8.0	4.2	102	1.1	2 U	6.6	0.2	45.6	2.6	12.6	59.4	0.2 U
Standard Dev.	10.4	3.1	23.3	0.3	0	0.1	0.0	32.9	1.2	0.5	57.2	0
Max conc.	34	9	150	1.7	2 U	6.7	0.3	96.6	4.1	13.1	140.0	0.2 U
Min conc.	1	1	72	0.5	2 U	6.5	0.2	11.7	0.7	11.8	-9.0	0.2 U

Source: URS (2004)

ºC = degree Celsius
mg/L = milligram per liter
mS/cm = milliSiemens per centimeter
mV = millivolts
NTU = nephelometric turbidity unit
SU = standard unit
U = not detected at given detection limit

Hamilton/Labree Site

Table 2-12. Field Parameters in Site-Wide Groundwater, July 2007

Well	Date	pH (SU)	Conductivity (µS/cm)	DO (mg/L)	Temperature (°C)	Turbidity (NTU)	ORP (mV)
MW-4	11-Jul-07	6.68	71	5.87	15.50	26	394
MW-19	11-Jul-07	6.61	79	4.16	17.54	NA	413
MW-21	11-Jul-07	6.75	82	5.06	17.03	4.8	404
MW-23	10-Jul-07	6.61	194	4.72	16.48	NA	373
MW-24	11-Jul-07	6.60	174	5.53	15.91	2.2	398
MW-25	10-Jul-07	6.76	223	3.21	17.49	NA	381
MW-30	12-Jul-07	6.59	199	5.19	15.20	67	361
MW-32	12-Jul-07	6.65	200	3.41	16.53	5	358
MWR-7	12-Jul-07	6.73	188	5.79	16.73	2.5	351

Notes:
SU - standard unit
µS/cm - microSiemens per centimeter
mg/L - milligram per liter
°C - degrees Celsius
NTU - nephelometric turbidity unit
mV - millivolt
NA - Measurement not collected; visually clear

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-1	203.50	27-Feb-97	2.30	201.20	SAIC 1997
MW-1	203.50	29-Apr-97	2.60	200.90	SAIC 1997
MW-1	203.50	8-May-97	2.68	200.82	SAIC 1997
MW-1	203.50	23-Jul-97	4.61	198.89	Ecology 2000
MW-1	203.50	15-Sep-97	5.27	198.23	Ecology 2000
MW-1	203.50	9-Oct-97	3.38	200.12	Ecology 2000
MW-1	203.50	13-Nov-97	3.11	200.39	Ecology 2000
MW-1	203.50	18-Dec-97	2.37	201.13	Ecology 2000
MW-1	203.50	27-Jan-98	1.66	201.84	Ecology 2000
MW-1	203.50	2-Apr-98	2.78	200.72	Ecology 2000
MW-1	203.50	28-Apr-98	3.41	200.09	Ecology 2000
MW-1	203.50	23-Jul-98	4.92	198.58	Ecology 2000
MW-1	203.50	3-Feb-99	1.95	201.55	Ecology 2000
MW-1	203.50	7-Jul-99	4.70	198.80	Ecology 2000
MW-1	203.50	3-Feb-00	3.02	200.48	Ecology 2000
MW-1	203.50	31-Jan-01	3.90	199.60	E&E 2001
MW-1	203.50	31-Oct-01	5.06	198.44	E&E 2002
MW-1	203.50	5-Sep-02	6.97	196.53	Farallon 2003
MW-1	203.50	21-Nov-02	5.62	197.88	Farallon 2003
MW-1	203.50	11-Feb-03	3.28	200.22	Farallon 2004
MW-1	203.50	10-May-10	3.15	200.35	EPA 2011
MW-2	204.69	27-Feb-97	4.95	199.74	SAIC 1997
MW-2	204.69	29-Apr-97	5.14	199.55	SAIC 1997
MW-2	204.69	8-May-97	5.26	199.43	SAIC 1997
MW-2	204.69	23-Jul-97	7.22	197.47	Ecology 2000
MW-2	204.69	15-Sep-97	7.67	197.02	Ecology 2000
MW-2	204.69	9-Oct-97	5.72	198.97	Ecology 2000
MW-2	204.69	13-Nov-97	5.68	199.01	Ecology 2000
MW-2	204.69	18-Dec-97	4.77	199.92	Ecology 2000
MW-2	204.69	27-Jan-98	4.30	200.39	Ecology 2000
MW-2	204.69	2-Apr-98	5.41	199.28	Ecology 2000
MW-2	204.69	28-Apr-98	6.03	198.66	Ecology 2000
MW-2	204.69	23-Jul-98	7.46	197.23	Ecology 2000
MW-2	204.69	3-Feb-99	4.24	200.45	Ecology 2000
MW-2	204.69	7-Jul-99	7.17	197.52	Ecology 2000
MW-2	204.69	3-Feb-00	5.31	199.38	Ecology 2000
MW-2	204.69	31-Jan-01	6.22	198.47	E&E 2001
MW-2	204.69	31-Oct-01	7.50	197.19	E&E 2002
MW-2	204.69	6-Dec-01	2.86	201.83	E&E 2002
MW-2	204.69	5-Sep-02	9.18	195.51	Farallon 2003
MW-2	204.69	21-Nov-02	7.78	196.91	Farallon 2003
MW-2	204.69	11-Feb-03	5.59	199.10	Farallon 2004
MW-2	204.69	10-Nov-03	7.54	197.15	Farallon 2004
MW-3	208.24	27-Feb-97	4.05	204.19	SAIC 1997
MW-3	208.24	29-Apr-97	6.15	202.09	SAIC 1997
MW-3	208.24	8-May-97	6.38	201.86	SAIC 1997
MW-3	208.24	23-Jul-97	8.69	199.55	Ecology 2000
MW-3	208.24	15-Sep-97	9.09	199.15	Ecology 2000
MW-3	208.24	9-Oct-97	6.99	201.25	Ecology 2000
MW-3	208.24	13-Nov-97	6.73	201.51	Ecology 2000

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-3	208.24	18-Dec-97	6.12	202.12	Ecology 2000
MW-3	208.24	27-Jan-98	5.05	203.19	Ecology 2000
MW-3	208.24	2-Apr-98	6.64	201.60	Ecology 2000
MW-3	208.24	28-Apr-98	7.34	200.90	Ecology 2000
MW-3	208.24	23-Jul-98	9.13	199.11	Ecology 2000
MW-3	208.24	7-Jul-99	8.35	199.89	Ecology 2000
MW-3	208.24	3-Feb-00	6.43	201.81	Ecology 2000
MW-3	208.24	31-Jan-01	7.38	200.86	E&E 2001
MW-3	208.24	1-Nov-01	8.65	199.59	E&E 2002
MW-3	208.24	6-Dec-01	6.18	202.06	E&E 2002
MW-3	208.24	5-Sep-02	10.52	197.72	Farallon 2003
MW-3	208.24	21-Nov-02	8.99	199.25	Farallon 2003
MW-3	208.24	11-Feb-03	6.44	201.80	Farallon 2004
MW-3	208.24	13-Nov-03	8.37	199.87	Farallon 2004
MW-3	208.24	10-May-10	6.35	201.89	EPA 2011
MW-4	203.97	27-Feb-97	3.30	200.67	SAIC 1997
MW-4	203.97	29-Apr-97	4.16	199.81	SAIC 1997
MW-4	203.97	8-May-97	4.34	199.63	SAIC 1997
MW-4	203.97	23-Jul-97	6.48	197.49	Ecology 2000
MW-4	203.97	15-Sep-97	6.86	197.11	Ecology 2000
MW-4	203.97	9-Oct-97	4.78	199.19	Ecology 2000
MW-4	203.97	13-Nov-97	4.77	199.20	Ecology 2000
MW-4	203.97	18-Dec-97	3.70	200.27	Ecology 2000
MW-4	203.97	27-Jan-98	3.23	200.74	Ecology 2000
MW-4	203.97	2-Apr-98	4.56	199.41	Ecology 2000
MW-4	203.97	28-Apr-98	5.17	198.80	Ecology 2000
MW-4	203.97	23-Jul-98	6.70	197.27	Ecology 2000
MW-4	203.97	3-Feb-99	3.04	200.93	Ecology 2000
MW-4	203.97	7-Jul-99	6.28	197.69	Ecology 2000
MW-4	203.97	3-Feb-00	4.20	199.77	Ecology 2000
MW-4	203.97	31-Jan-01	5.22	198.75	E&E 2001
MW-4	203.97	31-Oct-01	6.57	197.40	E&E 2002
MW-4	203.97	6-Dec-01	3.65	200.32	E&E 2002
MW-4	203.97	5-Sep-02	8.03	195.94	Farallon 2003
MW-4	203.97	21-Nov-02	6.72	197.25	Farallon 2003
MW-4	203.97	11-Feb-03	4.44	199.53	Farallon 2004
MW-4	203.97	10-Nov-03	6.47	197.50	Farallon 2004
MW-4	203.97	11-Jul-07	6.35	197.62	Parametrix 2007
MW-5	210.29	8-May-97	7.45	202.84	SAIC 1997
MW-5	210.29	23-Jul-97	9.68	200.61	Ecology 2000
MW-5	210.29	15-Sep-97	10.31	199.98	Ecology 2000
MW-5	210.29	9-Oct-97	8.32	201.97	Ecology 2000
MW-5	210.29	13-Nov-97	7.93	202.36	Ecology 2000
MW-5	210.29	18-Dec-97	7.19	203.10	Ecology 2000
MW-5	210.29	27-Jan-98	6.29	204.00	Ecology 2000
MW-5	210.29	2-Apr-98	7.63	202.66	Ecology 2000
MW-5	210.29	28-Apr-98	8.32	201.97	Ecology 2000
MW-5	210.29	23-Jul-98	10.10	200.19	Ecology 2000
MW-5	210.29	3-Feb-99	6.61	203.68	Ecology 2000
MW-5	210.29	7-Jul-99	9.70	200.59	Ecology 2000

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-5	210.29	3-Feb-00	7.66	202.63	Ecology 2000
MW-5	210.29	31-Jan-01	8.98	201.31	E&E 2001
MW-5	210.29	31-Oct-01	10.33	199.96	E&E 2002
MW-5	210.29	6-Dec-01	7.59	202.70	E&E 2002
MW-5	210.29	5-Sep-02	11.88	198.41	Farallon 2003
MW-5	210.29	21-Nov-02	10.54	199.75	Farallon 2003
MW-5	210.29	11-Feb-03	7.84	202.45	Farallon 2004
MW-5	210.29	10-Nov-03	10.02	200.27	Farallon 2004
MW-5	210.29	10-May-10	7.72	202.57	EPA 2011
MW-6	206.43	8-May-97	5.98	200.45	SAIC 1997
MW-6	206.43	23-Jul-97	8.81	197.62	Ecology 2000
MW-6	206.43	9-Oct-97	6.57	199.86	Ecology 2000
MW-6	206.43	27-Jan-98	4.77	201.66	Ecology 2000
MW-6	206.43	2-Apr-98	6.18	200.25	Ecology 2000
MW-6	206.43	28-Apr-98	6.92	199.51	Ecology 2000
MW-6	206.43	23-Jul-98	8.48	197.95	Ecology 2000
MW-6	206.43	3-Feb-99	4.61	201.82	Ecology 2000
MW-6	206.43	7-Jul-99	7.92	198.51	Ecology 2000
MW-6	206.43	3-Feb-00	6.11	200.32	Ecology 2000
MW-6	206.43	31-Jan-01	7.01	199.42	E&E 2001
MW-6	206.43	31-Oct-01	8.37	198.06	E&E 2002
MW-6	206.43	6-Dec-01	5.89	200.54	E&E 2002
MW-6	206.43	5-Sep-02	10.01	196.42	Farallon 2003
MW-6	206.43	21-Nov-02	8.59	197.84	Farallon 2003
MW-6	206.43	11-Feb-03	6.25	200.18	Farallon 2004
MW-6	206.43	10-Nov-03	8.29	198.14	Farallon 2004
MW-6	206.43	10-May-10	6.20	200.23	EPA 2011
MW-7	201.76	8-May-97	2.89	198.87	SAIC 1997
MW-7	201.76	23-Jul-97	4.70	197.06	Ecology 2000
MW-7	201.76	15-Sep-97	5.19	196.57	Ecology 2000
MW-7	201.76	9-Oct-97	3.35	198.41	Ecology 2000
MW-7	201.76	13-Nov-97	3.29	198.47	Ecology 2000
MW-7	201.76	18-Dec-97	2.40	199.36	Ecology 2000
MW-7	201.76	27-Jan-98	2.02	199.74	Ecology 2000
MW-7	201.76	2-Apr-98	3.06	198.70	Ecology 2000
MW-7	201.76	28-Apr-98	3.58	198.18	Ecology 2000
MW-7	201.76	23-Jul-98	5.05	196.71	Ecology 2000
MW-7	201.76	3-Feb-99	1.97	199.79	Ecology 2000
MW-7	201.76	7-Jul-99	4.95	196.81	Ecology 2000
MW-7	201.76	3-Feb-00	2.94	198.82	Ecology 2000
MW-7	201.76	31-Jan-01	3.76	198.00	E&E 2001
MW-7	201.76	31-Oct-01	5.06	196.70	E&E 2002
MW-7	201.76	5-Sep-02	6.80	194.96	Farallon 2003
MW-7	201.76	21-Nov-02	5.41	196.35	Farallon 2003
MW-7	201.76	11-Feb-03	3.33	198.43	Farallon 2004
MW-7	201.76	10-Nov-03	5.25	196.51	Farallon 2004
MW-7	201.76	10-May-10	3.35	198.41	EPA 2011
MW-8	202.72	8-May-97	3.50	199.22	SAIC 1997
MW-8	202.72	9-Oct-97	3.72	199.00	Ecology 2000
MW-8	202.72	13-Nov-97	3.91	198.81	Ecology 2000

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-8	202.72	18-Dec-97	2.95	199.77	Ecology 2000
MW-8	202.72	27-Jan-98	2.54	200.18	Ecology 2000
MW-8	202.72	28-Apr-98	4.40	198.32	Ecology 2000
MW-8	202.72	3-Feb-99	2.20	200.52	Ecology 2000
MW-8	202.72	7-Jul-99	5.41	197.31	Ecology 2000
MW-8	202.72	3-Feb-00	3.41	199.31	Ecology 2000
MW-8	202.72	31-Oct-01	5.70	197.02	E&E 2002
MW-8	202.72	6-Dec-01	4.90	197.82	E&E 2002
MW-8	202.72	5-Sep-02	7.29	195.43	Farallon 2003
MW-8	202.72	21-Nov-02	5.92	196.80	Farallon 2003
MW-8	202.72	11-Feb-03	3.73	198.99	Farallon 2004
MW-8	202.72	10-Nov-03	5.68	197.04	Farallon 2004
MW-8	202.72	10-May-10	3.70	199.02	EPA 2011
MW-9	206.73	27-Aug-00	5.05	201.68	E&E 2000
MW-9	206.73	31-Jan-01	2.60	204.13	E&E 2001
MW-9	206.73	31-Oct-01	4.42	202.31	E&E 2002
MW-9	206.73	5-Sep-02	5.70	201.03	Farallon 2003
MW-9	206.73	21-Nov-02	4.49	202.24	Farallon 2003
MW-9	206.73	11-Feb-03	1.35	205.38	Farallon 2004
MW-9	206.73	10-Nov-03	3.83	202.90	Farallon 2004
MW-10	207.80	27-Aug-00	6.00	201.80	E&E 2000
MW-10	207.80	31-Jan-01	3.64	204.16	E&E 2001
MW-10	207.80	31-Oct-01	5.47	202.33	E&E 2002
MW-10	207.80	5-Sep-02	6.69	201.11	Farallon 2003
MW-10	207.80	21-Nov-02	5.50	202.30	Farallon 2003
MW-10	207.80	11-Feb-03	2.34	205.46	Farallon 2004
MW-10	207.80	10-Nov-03	4.81	202.99	Farallon 2004
MW-11	207.43	5-Sep-02	5.64	201.79	Farallon 2003
MW-11	207.43	21-Nov-02	4.60	202.83	Farallon 2003
MW-11	207.43	11-Feb-03	1.09	206.34	Farallon 2004
MW-11	207.43	10-Nov-03	4.71	202.72	Farallon 2004
MW-13	207.93	6-Dec-01	1.90	206.03	E&E 2002
MW-14	209.09	3-Feb-01	3.54	205.55	E&E 2001
MW-14	209.09	5-Sep-02	6.98	202.11	Farallon 2003
MW-14	209.09	21-Nov-02	5.90	203.19	Farallon 2003
MW-14	209.09	11-Feb-03	2.40	206.69	Farallon 2004
MW-14	209.09	10-Nov-03	5.11	203.98	Farallon 2004
MW-15	209.61	3-Feb-01	3.83	205.78	E&E 2001
MW-15	209.61	6-Dec-01	2.97	206.64	E&E 2002
MW-16	207.91	6-Dec-01	2.12	205.79	E&E 2002
MW-17	201.52	5-Sep-02	6.44	195.08	Farallon 2003
MW-17	201.52	21-Nov-02	5.03	196.49	Farallon 2003
MW-17	201.52	11-Feb-03	2.92	198.60	Farallon 2004
MW-17	201.52	10-Nov-03	4.83	196.69	Farallon 2004
MW-17	201.52	10-May-10	2.85	198.67	EPA 2011
MW-18	201.56	5-Sep-02	6.56	195.00	Farallon 2003
MW-18	201.56	21-Nov-02	5.18	196.38	Farallon 2003
MW-18	201.56	11-Feb-03	3.09	198.47	Farallon 2004
MW-18	201.56	10-Nov-03	5.01	196.55	Farallon 2004
MW-18	201.56	10-May-10	3.10	198.46	EPA 2011

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-19	203.17	5-Sep-02	8.78	194.39	Farallon 2003
MW-19	203.17	21-Nov-02	7.42	195.75	Farallon 2003
MW-19	203.17	11-Feb-03	5.39	197.78	Farallon 2004
MW-19	203.17	10-Nov-03	7.27	195.90	Farallon 2004
MW-19	203.17	11-Jul-07	7.15	196.02	Parametrix 2007
MW-19	203.17	10-May-10	5.40	197.77	EPA 2011
MW-20	203.98	5-Sep-02	9.14	194.84	Farallon 2003
MW-20	203.98	21-Nov-02	7.84	196.14	Farallon 2003
MW-20	203.98	11-Feb-03	5.76	198.22	Farallon 2004
MW-20	203.98	10-Nov-03	7.66	196.32	Farallon 2004
MW-20	203.98	10-May-10	5.80	198.18	EPA 2011
MW-21	204.29	5-Sep-02	9.44	194.85	Farallon 2003
MW-21	204.29	21-Nov-02	8.14	196.15	Farallon 2003
MW-21	204.29	11-Feb-03	6.04	198.25	Farallon 2004
MW-21	204.29	10-Nov-03	7.97	196.32	Farallon 2004
MW-21	204.29	11-Jul-07	7.84	196.45	Parametrix 2007
MW-21	204.29	10-May-10	6.07	198.22	EPA 2011
MW-22	206.57	5-Sep-02	10.05	196.52	Farallon 2003
MW-22	206.57	21-Nov-02	8.63	197.94	Farallon 2003
MW-22	206.57	11-Feb-03	6.27	200.30	Farallon 2004
MW-22	206.57	10-Nov-03	8.31	198.26	Farallon 2004
MW-22	206.57	10-May-10	6.20	200.37	EPA 2011
MW-23	206.51	5-Sep-02	9.98	196.53	Farallon 2004
MW-23	206.51	21-Nov-02	8.53	197.98	Farallon 2004
MW-23	206.51	11-Feb-03	6.17	200.34	Farallon 2004
MW-23	206.51	10-Nov-03	8.21	198.30	Farallon 2004
MW-23	206.51	10-Jul-07	7.80	198.71	Parametrix 2007
MW-23	206.51	10-May-10	6.15	200.36	EPA 2011
MW-24	205.96	5-Sep-02	9.25	196.71	Farallon 2003
MW-24	205.96	21-Nov-02	7.78	198.18	Farallon 2003
MW-24	205.96	11-Feb-03	5.39	200.57	Farallon 2004
MW-24	205.96	10-Nov-03	7.47	198.49	Farallon 2004
MW-24	205.96	11-Jul-07	7.33	198.63	Parametrix 2007
MW-24	205.96	10-May-10	5.40	200.56	EPA 2011
MW-25	195.68	5-Sep-02	8.60	187.08	Farallon 2003
MW-25	195.68	21-Nov-02	7.65	188.03	Farallon 2003
MW-25	195.68	11-Feb-03	5.54	190.14	Farallon 2004
MW-25	195.68	10-Nov-03	7.49	188.19	Farallon 2004
MW-25	195.68	10-Jul-07	7.19	188.49	Parametrix 2007
MW-25	195.68	10-May-10	5.55	190.13	EPA 2011
MW-26	205.5	10-Nov-03	6.63	198.87	Farallon 2004
MW-27	203.02	10-Nov-03	5.72	197.30	Farallon 2004
MW-28	182.32	10-Nov-03	5.22	177.10	Farallon 2004
MW-29	203.8	10-Nov-03	5.59	198.21	Farallon 2004
MW-30	203.68	10-Nov-03	5.30	198.38	Farallon 2004
MW-30	203.68	12-Jul-07	5.22	198.46	Parametrix 2007
MW-31	202.65	10-Nov-03	5.17	197.48	Farallon 2004
MW-32	204.07	10-Nov-03	5.91	198.16	Farallon 2004
MW-32	204.07	12-Jul-07	5.83	198.24	Parametrix 2007
MW-32	204.07	10-May-10	3.90	200.17	EPA 2011

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-33		10-May-10	7.60		EPA 2011
MW-34		10-May-10	3.15		EPA 2011
MW-600	209.20	21-Nov-03	5.04	204.16	URS 2004
MW-600	209.20	10-May-10	3.80	205.40	EPA 2011
MW-601	208.71	21-Nov-03	4.84	203.87	URS 2004
MW-601	208.71	10-May-10	3.30	205.41	EPA 2011
MW-602	208.03	24-Nov-03	4.06	203.97	URS 2004
MW-602	208.03	10-May-10	2.64	205.39	EPA 2011
MW-603	207.79	24-Nov-03	3.82	203.97	URS 2004
MW-603	207.79	10-May-10	2.40	205.39	EPA 2011
MW-604	209.06	25-Nov-03	4.55	204.51	URS 2004
MW-604	209.06	10-May-10	3.65	205.41	EPA 2011
MW-605	207.23	24-Nov-03	4.22	203.01	URS 2004
MW-605	207.23	10-May-10	2.75	204.48	EPA 2011
MW-606	206.83	6-Nov-03	5.71	201.12	URS 2004
MW-607	206.88	7-Nov-03	6.04	200.84	URS 2004
MW-608	205.59	8-Nov-03	5.90	199.69	URS 2004
MW-608	205.59	10-May-10	3.73	201.86	EPA 2011
MW-R1	208.94	8-Jul-99	5.91	203.03	Ecology 2000
MW-R1	208.94	3-Feb-00	3.59	205.35	Ecology 2000
MW-R1	208.94	30-Jan-01	5.03	203.91	E&E 2001
MW-R1	208.94	30-Oct-01	6.95	201.99	E&E 2002
MW-R1	208.94	5-Sep-02	8.06	200.88	Farallon 2003
MW-R1	208.94	21-Nov-02	6.74	202.20	Farallon 2003
MW-R1	208.94	11-Feb-03	3.66	205.28	Farallon 2004
MW-R1	208.94	10-Nov-03	6.11	202.83	Farallon 2004
MW-R1	208.94	10-May-10	3.60	205.34	EPA 2011
MW-R2	209.39	8-Jul-99	6.42	202.97	Ecology 2000
MW-R2	209.39	3-Feb-00	5.12	204.27	Ecology 2000
MW-R2	209.39	30-Jan-01	5.03	204.36	E&E 2001
MW-R2	209.39	31-Oct-01	7.40	201.99	E&E 2002
MW-R2	209.39	6-Dec-01	4.39	205.00	E&E 2002
MW-R2	209.39	5-Sep-02	8.49	200.90	Farallon 2003
MW-R2	209.39	21-Nov-02	7.21	202.18	Farallon 2003
MW-R2	209.39	11-Feb-03	4.15	205.24	Farallon 2004
MW-R2	209.39	10-Nov-03	6.59	202.80	Farallon 2004
MW-R2	209.39	10-May-10	4.10	205.29	EPA 2011
MW-R3	208.25	8-Jul-99	5.43	202.82	Ecology 2000
MW-R3	208.25	3-Feb-00	3.29	204.96	Ecology 2000
MW-R3	208.25	31-Jan-01	4.72	203.53	E&E 2001
MW-R3	208.25	31-Oct-01	6.41	201.84	E&E 2002
MW-R3	208.25	5-Sep-02	7.43	200.82	Farallon 2003
MW-R3	208.25	21-Nov-02	6.26	201.99	Farallon 2003
MW-R3	208.25	11-Feb-03	3.27	204.98	Farallon 2004
MW-R3	208.25	10-Nov-03	5.64	202.61	Farallon 2004
MW-R3	208.25	10-May-10	3.00	205.25	EPA 2011
MW-R4	207.32	8-Jul-99	5.08	202.24	Ecology 2000
MW-R4	207.32	3-Feb-00	3.03	204.29	Ecology 2000
MW-R4	207.32	31-Jan-01	5.03	202.29	E&E 2001
MW-R4	207.32	31-Oct-01	6.02	201.30	E&E 2002

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-R4	207.32	5-Sep-02	7.26	200.06	Farallon 2003
MW-R4	207.32	21-Nov-02	6.04	201.28	Farallon 2003
MW-R4	207.32	11-Feb-03	3.10	204.22	Farallon 2004
MW-R4	207.32	10-Nov-03	5.45	201.87	Farallon 2004
MW-R4	207.32	10-May-10	3.00	204.32	EPA 2011
MW-R5	208.51	8-Jul-99	5.38	203.13	Ecology 2000
MW-R5	208.51	3-Feb-00	3.03	205.48	Ecology 2000
MW-R5	208.51	30-Jan-01	4.51	204.00	E&E 2001
MW-R5	208.51	30-Oct-01	6.29	202.22	E&E 2002
MW-R5	208.51	6-Dec-01	3.32	205.19	E&E 2002
MW-R5	208.51	5-Sep-02	7.57	200.94	Farallon 2003
MW-R5	208.51	21-Nov-02	6.25	202.26	Farallon 2003
MW-R5	208.51	11-Feb-03	3.12	205.39	Farallon 2004
MW-R5	208.51	10-Nov-03	5.60	202.91	Farallon 2004
MW-R5	208.51	10-May-10	3.00	205.51	EPA 2011
MW-R6	206.19	8-Jul-99	3.37	202.82	Ecology 2000
MW-R6	206.19	3-Feb-00	1.31	204.88	Ecology 2000
MW-R6	206.19	30-Jan-01	6.00	200.19	E&E 2001
MW-R6	206.19	30-Oct-01	4.40	201.79	E&E 2002
MW-R6	206.19	5-Sep-02	5.65	200.54	Farallon 2003
MW-R6	206.19	21-Nov-02	4.24	201.95	Farallon 2003
MW-R6	206.19	11-Feb-03	1.29	204.90	Farallon 2004
MW-R6	206.19	10-Nov-03	3.67	202.52	Farallon 2004
MW-R6	206.19	10-May-10	1.10	205.09	EPA 2011
MW-R7	206.65	8-Jul-99	4.18	202.47	Ecology 2000
MW-R7	206.65	3-Feb-00	2.24	204.41	Ecology 2000
MW-R7	206.65	30-Jan-01	3.40	203.25	E&E 2001
MW-R7	206.65	30-Oct-01	4.90	201.75	E&E 2002
MW-R7	206.65	5-Sep-02	6.39	200.26	Farallon 2003
MW-R7	206.65	21-Nov-02	5.07	201.58	Farallon 2003
MW-R7	206.65	11-Feb-03	2.10	204.55	Farallon 2004
MW-R7	206.65	10-Nov-03	4.62	202.03	Farallon 2004
MW-R7	206.65	12-Jul-07	4.36	202.29	Parametrix 2007
MW-R8	207.17	30-Jan-01	3.35	203.82	E&E 2001
MW-R8	207.17	30-Oct-01	4.91	202.26	E&E 2002
MW-R8	207.17	5-Sep-02	6.44	200.73	Farallon 2003
MW-R8	207.17	21-Nov-02	5.10	202.07	Farallon 2003
MW-R8	207.17	11-Feb-03	1.99	205.18	Farallon 2004
MW-R8	207.17	10-Nov-03	4.93	202.24	Farallon 2004
MW-R9	206.44	28-Aug-00	5.92	200.52	E&E 2000
MW-R9	206.44	30-Jan-01	2.74	203.70	E&E 2001
MW-R9	206.44	30-Oct-01	4.38	202.06	E&E 2002
MW-R9	206.44	5-Sep-02	5.77	200.67	Farallon 2003
MW-R9	206.44	21-Nov-02	4.46	201.98	Farallon 2003
MW-R9	206.44	11-Feb-03	1.37	205.07	Farallon 2004
MW-R9	206.44	10-Nov-03	3.33	203.11	Farallon 2004
MW-R9	206.44	10-May-10	1.35	205.09	EPA 2011
MW-R10	206.78	30-Jan-01	4.53	202.25	E&E 2001
MW-R10	206.78	30-Oct-01	6.23	200.55	E&E 2002
MW-R10	206.78	5-Sep-02	7.57	199.21	Farallon 2003

Table 3-1. Historical Water Level Data

Sample Location	Top of Casing Elevation (ft above msl)	Date Collected	Depth to Water (ft)	Groundwater Elevation (ft above msl)	Reference
MW-R10	206.78	21-Nov-02	6.16	200.62	Farallon 2003
MW-R10	206.78	11-Feb-03	3.36	203.42	Farallon 2004
MW-R10	206.78	10-Nov-03	5.66	201.12	Farallon 2004
MW-R11	206.78	31-Jan-01	4.66	202.12	E&E 2001
MW-R11	206.78	30-Oct-01	6.48	200.30	E&E 2002
MW-R11	206.78	6-Dec-01	3.32	203.46	E&E 2002
MW-R11	206.78	5-Sep-02	7.71	199.07	Farallon 2003
MW-R11	206.78	21-Nov-02	6.28	200.50	Farallon 2003
MW-R11	206.78	11-Feb-03	3.53	203.25	Farallon 2004
MW-R11	206.78	10-Nov-03	5.57	201.21	Farallon 2004
PW-4	203.37	10-Nov-03	5.35	198.02	Farallon 2004
PW-7	201.44	5-Sep-02	7.36	194.08	Farallon 2003
PW-7	201.44	21-Nov-02	6.20	195.24	Farallon 2003
PW-7	201.44	10-Nov-03	6.10	195.34	Farallon 2004
PW-21	199.16	5-Sep-02	5.69	193.47	Farallon 2003
PW-21	199.16	21-Nov-02	7.64	191.52	Farallon 2003
PW-21	199.16	10-Nov-03	7.45	191.71	Farallon 2003
PW-21	199.16	10-May-10	5.33	193.83	EPA 2011
PW-34	188.87	10-Nov-03	5.24	183.63	Farallon 2004
PW-34	188.87	10-May-10	2.25	186.62	EPA 2011

Notes:
ft - feet
msl - mean sea level

Hamilton/Labree Site

Table 3-2. Vertical Gradients within the Shallow Aquifer

	5-Sep-02	21-Nov-02	11-Feb-03	10-Nov-03	10-May-10	Average
MW-17(U) Water Level Elevation[1]	195.08	196.49	198.60	196.69	198.67	
MW-18(L) Water Level Elevation[1]	195.00	196.38	198.47	196.55	198.46	
Difference	0.08	0.11	0.13	0.14	0.21	
Difference in screen midpoints	25.50	25.50	25.50	25.50	25.50	
Vertical gradient (ft/ft)	**0.0031**	**0.0043**	**0.0051**	**0.0055**	**0.0082**	**0.0053**
MW-20(U) Water Level Elevation[1]	194.84	196.14	198.22	196.32	198.18	
MW-21(L) Water Level Elevation[1]	194.85	196.15	198.25	196.32	198.22	
Difference	-0.01	-0.01	-0.03	0.00	-0.04	
Difference in screen midpoints	19.50	19.50	19.50	19.50	19.50	
Vertical gradient (ft/ft)	**-0.0005**	**-0.0005**	**-0.0015**	**0.0000**	**-0.0021**	**-0.0009**
MW-29(U) Water Level Elevation[1]	196.52	197.94	200.30	198.26	200.37	
MW-30(L) Water Level Elevation[1]	196.53	197.98	200.34	198.30	200.36	
Difference	-0.01	-0.04	-0.04	-0.04	0.01	
Difference in screen midpoints	21.50	21.50	21.50	21.50	21.50	
Vertical gradient (ft/ft)	**-0.0005**	**-0.0019**	**-0.0019**	**-0.0019**	**0.0005**	**-0.0011**
MW-22(U) Water Level Elevation[1]	NM	NM	NM	198.26	NM	
MW-23(L) Water Level Elevation[1]	NM	NM	NM	198.30	NM	
Difference				-0.04		
Difference in screen midpoints				20.75		
Vertical gradient (ft/ft)				**-0.0019**		**-0.0019**

Notes:

1) Water level elevations provided in feet above mean sea level

U - upper zone well in shallow aquifer

L - lower zone well in shallow aquifer

ft/ft - foot per foot

Positive values are downward gradients; negative values are upward gradients

NM - Not measured

Table 3-3. Surface Water Monitoring Station Data

Surface Water Monitoring Station	Date Monitored	Creek Gauge Elevation (feet)[1]	Creek Height (feet)[2]	Surface Water Elevation (feet)	Estimated Groundwater Elevation[3]	Elevation Head Difference (feet)[4]	Flow Rate (cfm)	Flow Rate (gpm)	Channel Depth (feet)[5]
SW-5	9/5/02	209.08	4.32	204.76	201.00	-3.76	0.0	0	2.46
	11/21/02	209.08	4.50	204.58	202.20	-2.38	1.2	<50	2.22
SW-6	9/5/02	209.88	5.13	204.75	201.11	-3.64	0.0	0	2.40
	11/21/02	209.88	5.19	204.69	202.30	-2.39	0.6-4.2	<50	2.60
SW-7	9/5/02	208.77	3.98	204.79	200.90	-3.89	6.0	<50	4.11
	11/21/02	208.77	4.18	204.59	202.18	-2.41	0.0	0	3.91
SW-8	9/5/02	205.00	6.18	198.82	196.42	-2.40	65.0	500	0.37
	11/22/02	205.00	5.88	199.12	198.00	-1.12	190.0	1,400	0.91
SW-9	9/5/02	204.49	7.46	197.03	195.00	-2.03	116.0	870	0.43
	11/22/02	204.49	7.16	197.33	196.00	-1.33	170.0	1,250	0.70
SW-10	9/5/02	196.14	4.13	192.01	192.00	-0.01	0.0	0	2.09
	11/21/02	196.14	4.04	192.10	193.00	0.90	6.0	<50	2.20

Source: Farallon (2003)

Notes:

1 Surveyed elevation of top of stream gauge to vertical datum NGVD 29, in feet above mean sea level.
2 Height measured in feet from top of stream gauge to water surface.
3 Groundwater elevation estimated from corresponding well or groundwater contour.
4 A head difference is calculated by subtracting the groundwater elevation from the surface water elevation.
5 Channel depth in feet, measured in center of channel from water surface to bottom of channel.

cfm = cubic feet per minute
gpm = gallons per minute

Table 3-4. Monitoring Well Information

Well Identification Number	Total Depth (ft bgs)	Screen Interval (ft bgs)	Top of Casing Elevation (feet above MSL)[1]	Northing	Easting	Installation Date	Driller	Location
MW-1	47	36-46	203.50	480429.97	1029435.33	02/18/97	Tacoma Pump & Drill	Breen Property
MW-2	47	36-46	204.69	480111.19	1029118.99	02/20/97	Tacoma Pump & Drill	Breen Property
MW-3	46	35-45	208.24	479649.17	1029675.86	02/24/97	Tacoma Pump & Drill	United Rentals
MW-4[a]	46	35-45	203.97	479584.35	1029113.35	02/26/97	Tacoma Pump & Drill	South of Thurman Property
MW-5	49	38-48	210.29	479886.9	1029762.65	04/28/97	Tacoma Pump & Drill	Breen Property
MW-6	49	37-47	206.43	479955.44	1029414.61	04/29/97	Tacoma Pump & Drill	Breen Property
MW-7	45	34-44	201.76	480358.72	1029119.02	05/02/97	Tacoma Pump & Drill	Breen Property
MW-8	46	35-45	202.72	479941.53	1029053.19	05/06/97	Tacoma Pump & Drill	Breen Property
MW-9	50	29.5-49.5	206.73	479562.93	1030184.38	08/25/00	GeoTech	WSDOT ROW
MW-10	50	29.5-49.5	207.80	479433.18	1030283.38	08/26/00	GeoTech	WSDOT ROW
MW-11	47.5	27-47	207.43	479823.35	1030227.31	01/29/01	GeoTech	WSDOT ROW
MW-12	49.5	29-49	208.37	479748.07	1030284.46	01/31/01	GeoTech	WSDOT ROW
MW-13	49.3	28.8-48.8	207.93	479645.59	1030365.91	01/31/01	GeoTech	WSDOT ROW
MW-14	49	28.5-48.5	209.09	479554.59	1030429.58	01/31/01	GeoTech	WSDOT ROW
MW-15	48.6	28-48	209.61	479464.42	1030498.51	01/31/01	GeoTech	WSDOT ROW
MW-16	48.5	28-48	207.91	479899.3	1030165.37	02/01/01	GeoTech	WSDOT ROW
MW-17	26	10-25	201.52	480272.19	1029088.68	07/18/02	Cascade Drilling	Breen Property
MW-18	48.5	38-48	201.56	480265.53	1029087.33	07/18/02	Cascade Drilling	Breen Property
MW-19	47.5	38.5-48.5	203.17	480162.96	1028934.22	07/25/02	Cascade Drilling	Breen Property
MW-20	26	15-25	203.98	479938.02	1028929.94	07/19/02	Cascade Drilling	Breen Property
MW-21	45	34.5-44.5	204.29	479931.95	1028930.25	07/22/02	Cascade Drilling	Breen Property
MW-22	25.5	15-25	206.57	479784.75	1029354.27	07/23/02	Cascade Drilling	East of Thurman Property
MW-23	47	36.5-46.5	206.51	479777.55	1029355.52	07/24/02	Cascade Drilling	East of Thurman Property
MW-24	46	35-45.5	205.96	479604.50	1029345.86	07/24/02	Cascade Drilling	East of Thurman Property
MW-25	44	33-43	195.68	481544.18	1026991.32	07/29/02	Cascade Drilling	West of Breen Property
MW-26	25	15-25	205.5	480020.58	1029419.79	08/28/03	Cascade Drilling	Breen Property
MW-27	45	27-42	203.02	480059.90	1029039.66	08/28/03	Cascade Drilling	Breen Property
MW-28	37	16.5-36.5	182.32	485398.16	1024977.09	09/02/03	Cascade Drilling	West of Breen Property
MW-29	25.5	15.5-25.5	203.8	479905.43	1029190.84	09/09/03	Cascade Drilling	Breen Property
MW-30	46	36-46	203.68	479899.01	1029189.60	09/08/03	Cascade Drilling	Breen Property
MW-31	25.5	15-25	202.65	479821.03	1029074.48	09/10/03	Cascade Drilling	Thurman Property
MW-32	24.5	14-24	204.07	479809.34	1029168.83	09/10/03	Cascade Drilling	South of Thurman Property
MW-33	25	13-25	--	479891.50	1029767.65	04/12/04	Cascade Drilling	Breen Property

Table 3-4. Monitoring Well Information

Well Identification Number	Total Depth (ft bgs)	Screen Interval (ft bgs)	Top of Casing Elevation (feet above MSL)[1]	Northing	Easting	Installation Date	Driller	Location
MW-34	46	10.5-45.5	--	479928.96	1029122.67	04/12/04	Cascade Drilling	Breen Property
MW-R1	39	17-27	208.94	479537.35	1030127.63	06/08/99	Unknown	HRIA
MW-R2	28	17-27	209.39	479585.16	1030091.93	06/08/99	Unknown	HRIA
MW-R3	24	14-24	208.25	479678.84	1030017.56	06/09/99	Unknown	HRIA
MW-R4	26	16-26	207.32	479749.65	1029934.11	06/09/99	Unknown	HRIA
MW-R5	28	18-28	208.51	479447.72	1030197.89	06/08/99	Unknown	HRIA
MW-R6	26	16-26	206.19	479427.5	1030145.46	06/09/99	Unknown	HRIA
MW-R7	28	17-27	206.65	479534.07	1030024.54	06/09/99	Unknown	HRIA
MW-R8	51.5	10-50	207.17	479525	1030073.69	08/24/00	GeoTech	HRIA
MW-R9	49	19-49	206.44	479597.58	1030001.56	08/25/00	GeoTech	HRIA
MW-R10	50	19-49	206.78	479486.65	1029997.7	08/27/00	GeoTech	HRIA
MW-R11	50	19-49	206.78	479385.01	1029957.59	08/27/00	GeoTech	HRIA
MW-600	35	7-35	209.20	479428.5	1030226.8	11/05/03	Tacoma Pump & Drill	HRIA
MW-601	40	7-40	208.71	479469	1030195.3	11/10/03	Tacoma Pump & Drill	HRIA
MW-602	40	7-40	208.03	479519.2	1030160.1	11/11/03	Tacoma Pump & Drill	HRIA
MW-603	37	7-37	207.79	479558.3	1030131	11/13/03	Tacoma Pump & Drill	HRIA
MW-604	37	7-37	209.06	479479.4	1030168.42	10/27/03	Tacoma Pump & Drill	HRIA
MW-605	50	10-50	207.23	479425.9	1030114.5	11/17/03	Tacoma Pump & Drill	HRIA
MW-606	40	20-40	206.83	479285.2	1030036.2	10/30/03	Tacoma Pump & Drill	HRIA
MW-607	40	20-40	206.88	479389.9	1029933.7	10/22/03	Tacoma Pump & Drill	HRIA
MW-608	46	26-46	205.59	479744.8	1029734.6	10/23/03	Tacoma Pump & Drill	HRIA

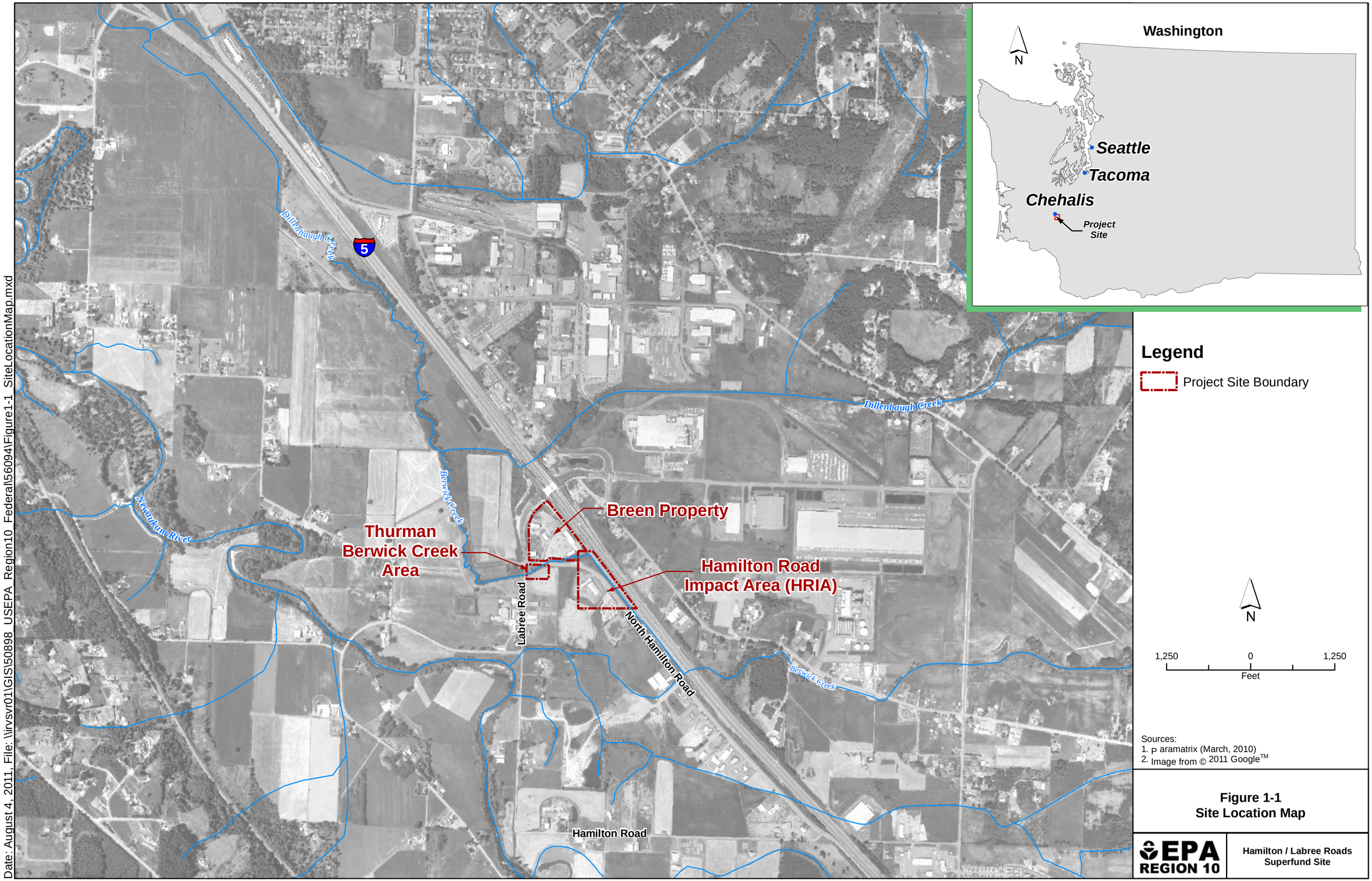
Notes:
1) Top of casing elevation in feet above mean sea level (MSL) surveyed to vertical datum: NGVD29
a) Well has been abandoned.
ft bgs - feet below ground surface
MSL - mean sea level

Table 3-5. Private Well Information

Well Identification Number	Top of Casing Elevation (feet above MSL)[1]	Northing	Easting	Aquifer	Well Depth (feet bgs)	Location	Well Log Available?[2]
PW-1	206.33	480048	1029260	Deep		Top of Well Head (PW No. 1)	
PW-2	208.77	479264	1030120	Shallow		311 North Hamilton Road	Yes
PW-3	206.54	479472	1029670	Shallow		United Rentals (PW No. 3); 281 North Hamilton Rd	Yes
PW-4	203.37	479063	1029140	Shallow		203 LaBree (Top Casing)	No
PW-5	204.12	478745	1028730	Shallow		210/228 LaBree Road (Top of Casing)	No
PW-6	204	478750	1028720	Deep		210/228 LaBree Road	No
PW-7	201.44	479807	1028720	Shallow		S62 W 169' from Hamilton/LaBree Road Intersection	No
PW-8		480091	1028730	Deep		N33 W 245' of Hamilton/LaBree Road intersection	No
PW-9	200.89	479790	1028930	Shallow		Thurman Property	No
PW-10				Deep			No
PW-12		480159	1030060	Shallow		Across I-5 northeast of Breen Property	No
PW-14		480490	1029780	Shallow		Across I-5 northeast of Breen Property	No
PW-16	+/- 202	479432	1026700	Shallow		2392 Rice Road	No
PW-17	+/- 200	479830	1026610	Shallow		2364 Rice Road (Top of Casing)	No
PW-18				Shallow		2386 Rice Road (Top of Casing)	No
PW-20				Shallow			No
PW-21	199.16	479749	1027000	Shallow		2377 Rice Road (Top of Casing)	Yes
PW-22	200.58	480215	1025950	Shallow		2332 Rice Road (Top of Casing)	No
PW-23		478658	1030200	Deep		269 North Hamilton Road	Yes
PW-24	202	479099	1026690	Shallow		2402 Rice Road	Yes*
PW-25	200.19	479561	1026780	Shallow		2386 Rice Road (Top of Casing)	No
PW-26	199	480308	1026170	Shallow		2341 Rice Road	No
PW-27	198.82	480660	1025690	Shallow		2319 Rice Road (Top of Casing)	No
PW-29	199	480474	1025460	Shallow		2312 Rice Road (Top of Casing)	No
PW-30	197.51	480660	1025180	Shallow		2296 Rice Road (Top of Casing)	No
PW-31	195	481239	1024380	Shallow		2274/2274-A Rice Road	No
PW-32	197	481455	1025040	Shallow		2267 Rice Road	No
PW-33	196	481696	1025040	Shallow		2261 Rice Road	No
PW-34	188.87	482505	1025120	Shallow		2229 Rice Road	No
PW-35	187	482702	1024960	Shallow		2221 Rice Road	No
PW-36	204.20	478928	1026740	Shallow		293 LaBree Road (Top of Casing)	No
PW-37	189	482279	1025280	Shallow		2237 Rice Road	No
PW-38	185.82	483655	1026750	Shallow		North end of Labree Road N.	No
PW-39	183.73	486397	1022490	Shallow			No

Notes:
1) Top of casing elevation in feet above mean sea level (MSL) surveyed to vertical datum: NGVD29
2) Washington State Department of Ecology well log records reviewed to obtain well logs
* Boring log shows well has been abandoned
ft bgs - feet below ground surface
MSL - mean sea level

Figures



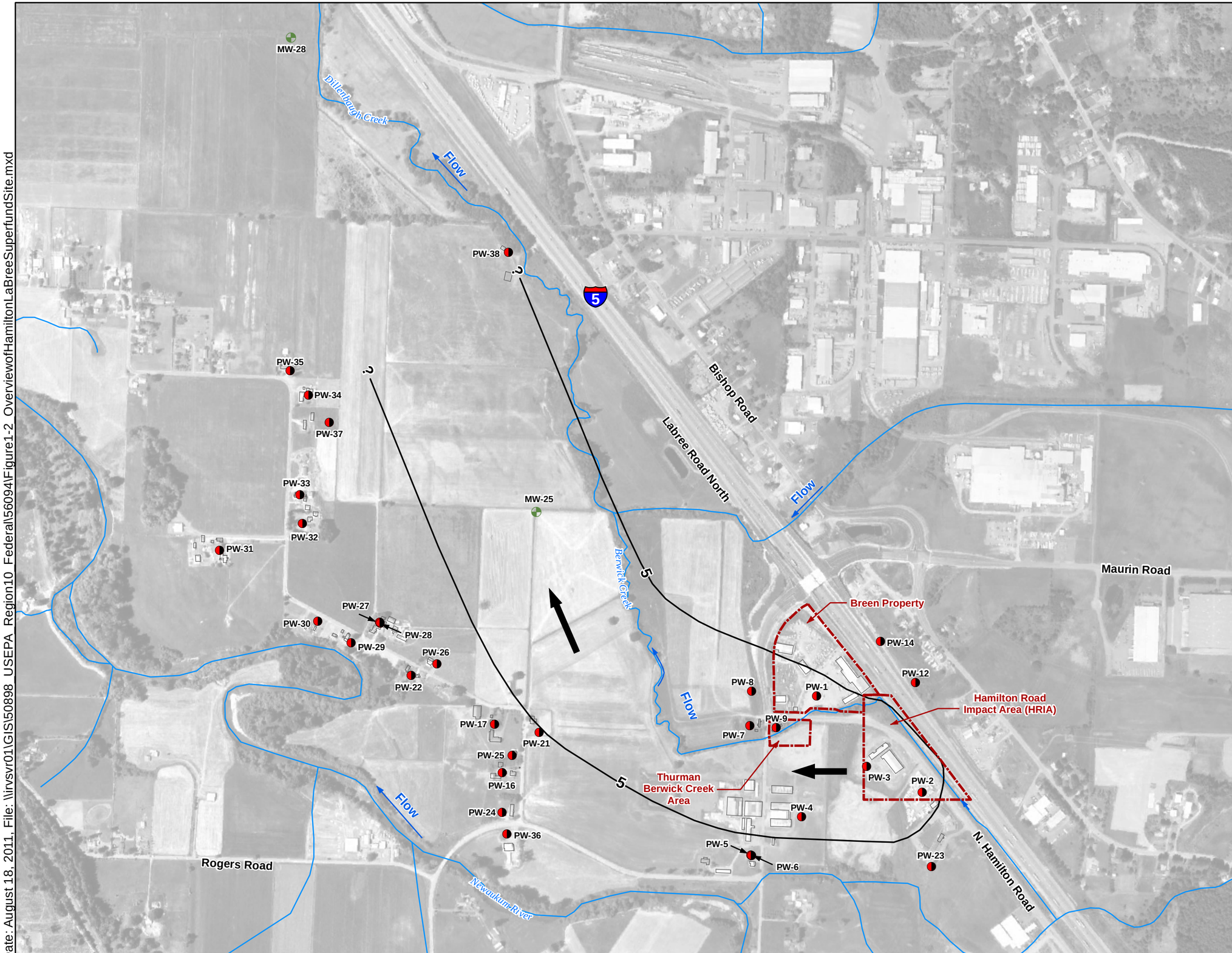
Sources:
1. p aramatrix (March, 2010)
2. Image from © 2011 Google™

Figure 1-1
Site Location Map

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure1-1_SiteLocationMap.mxd



Legend

- Project Site Boundary
- Estimated PCE Concentration Boundary (Dashed Where Inferred - Contour Values in ug/L)
- Creek Flow Direction
- Groundwater Flow Direction
- Monitoring Well
- Private Well

N

750 0 750
Feet

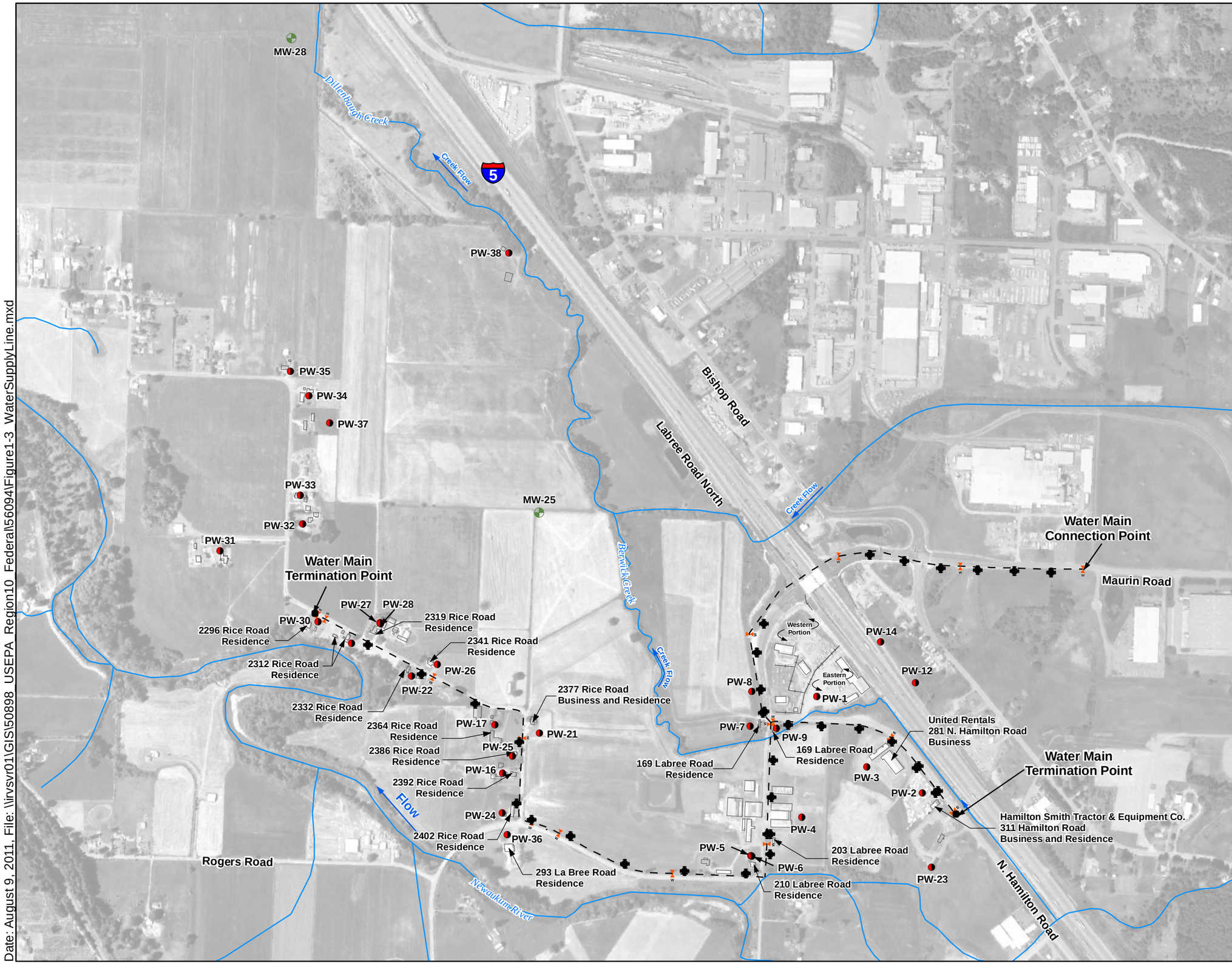
Sources:
1. Paramatrix (March, 2010)
2. [Ecology and Environment, Inc. 2002] PCE 5 ug/L contour as delineated in the E/CA Report (URS, 2004)
3. Image from © 2011 Google™

Figure 1-2
Overview of Hamilton/Labree Superfund Site

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 18, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure1-2_OverviewofHamiltonLaBreeSuperfundSite.mxd



Legend

- Water Line
- Creek Flow Direction
- Fire Hydrant
- Private Well
- Monitoring Well
- Water Valve

N

750 0 750
Feet

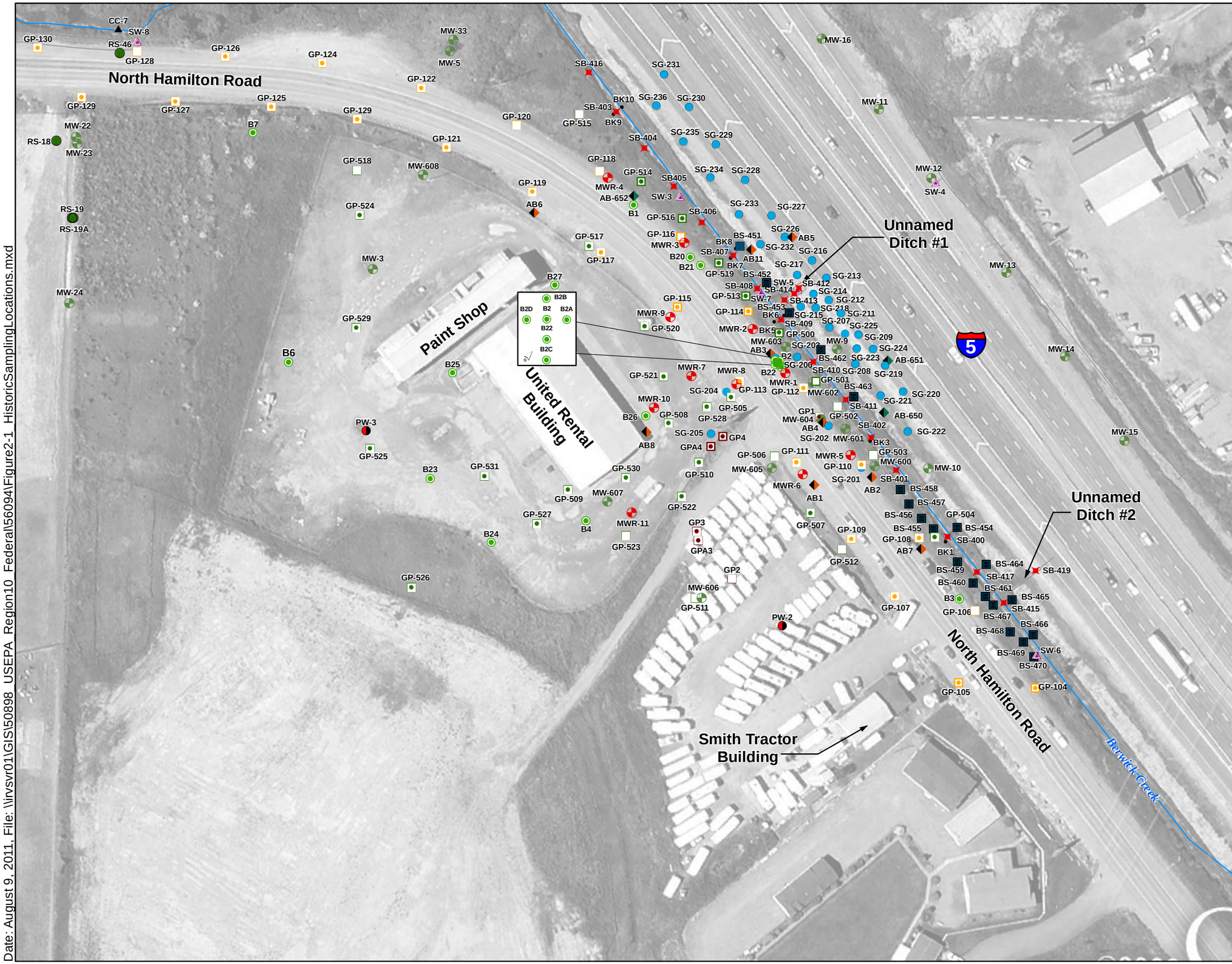
Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2[E
Image from © 2011 Google™

Figure 1-3
Water Supply Line

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure1-3_WaterSupplyLine.mxd



Legend

AB1	Auger Boring
AB-650	Auger Boring
B1	Soil Boring
BS-451	Stream Bed
CC-1	Creek Channel
GP1	Geoprobe Boring
GP-104	Geoprobe Boring
GP-520	Geoprobe Boring
MW-10	Monitoring Well
MWR-5	Monitoring Well/Recovery Well
PW-3	Private Well
RS-18	Reconnaissance Boring
SB-400	Stream Bank
SG1-20	Soil Gas
SG-225	Soil Gas
SW-5	Surface Water
BK10	Bank Sample
GA-1	Geophysical Survey Area

N

100 0 100
Feet

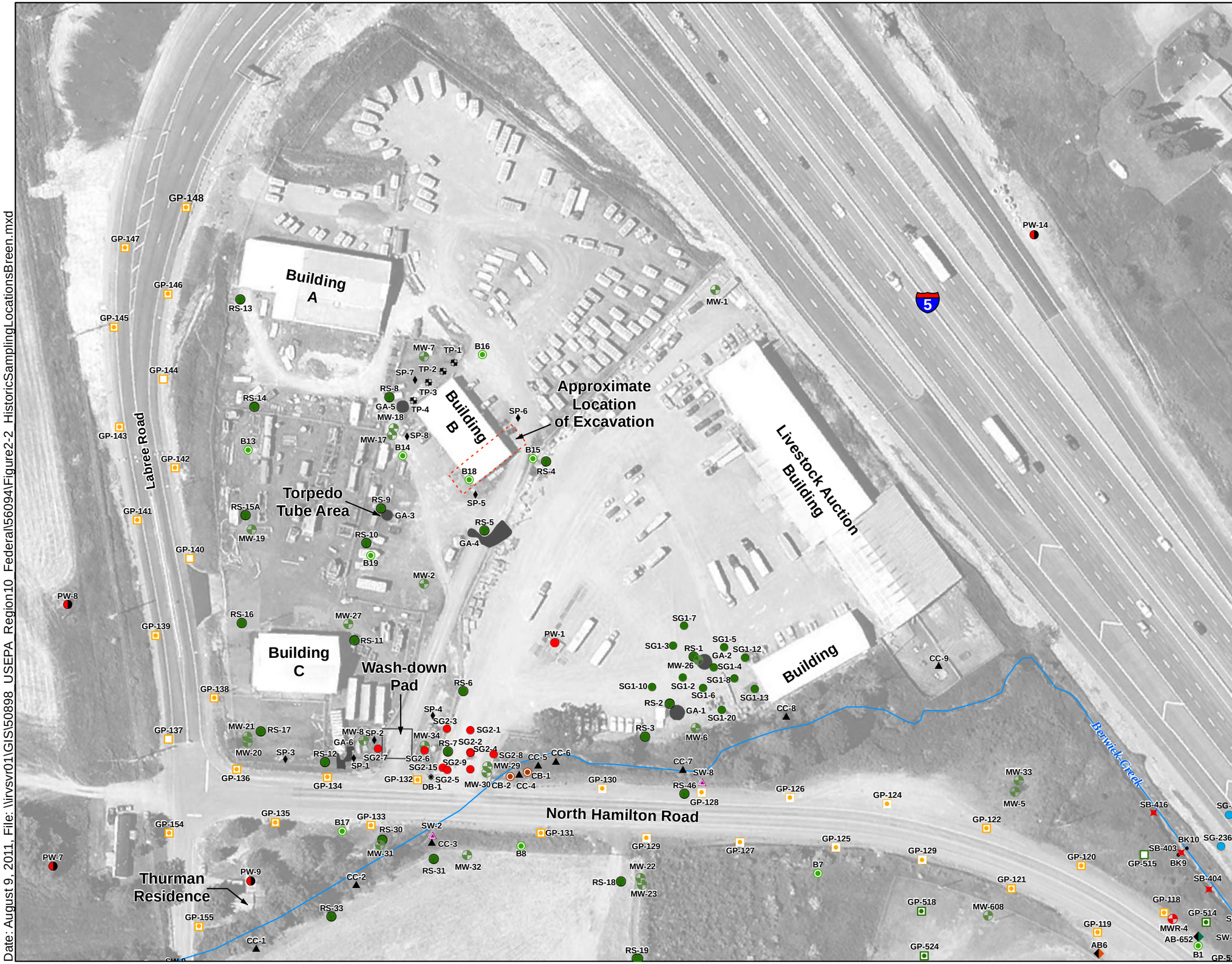
Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2[E
Image from © 2011 Google™

Figure 2-1
Historical Sampling Locations
HRIA

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure2-1_HistoricSamplingLocations.mxd



Legend

AB6	◆	Auger Boring
AB-652	◆	Auger Boring
B1	◉	Soil Boring
CC-9	▲	Creek Channel
GP-118	▣	Geoprobe Boring
GP-524	▣	Geoprobe Boring
MW-33	◔	Monitoring Well
MWR-4	◔	Monitoring Well/Recovery Well
PW-1	◐	Private Well
RS-1	●	Reconnaissance Boring
SB-403	✖	Stream Bank
SG1-10	●	Soil Gas
SG2-9	●	Soil Gas
SG-230	●	Soil Gas
SP-1	♦	Strataprobe Boring
SW-2	▲	Surface Water
TP-1	▪	Test Pit
BK10	•	Bank Sample
DB-1	✷	Shallow Soil
CB-1	◉	Boring
GA-6	⬬	Geophysical Survey Area

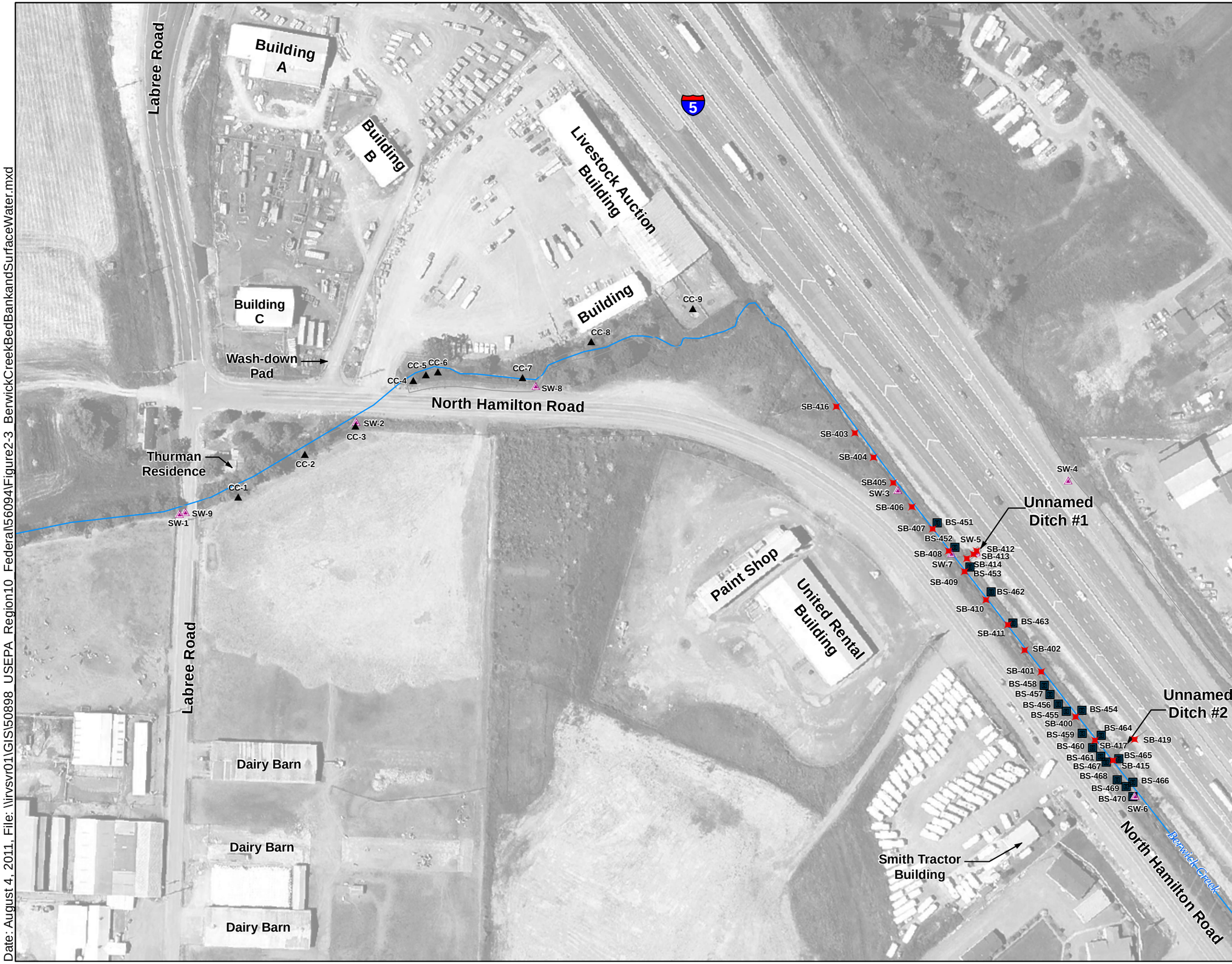
Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2. Image from © 2011 Google™

Figure 2-2
Historical Sampling Locations
Breen Property and Adjacent

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure2-2_HistoricSamplingLocationsBreen.mxd



Legend

BS-451	Stream Bed
CC-1	Creek Channel
SB-416	Stream Bank
SW-7	Surface Water

N

150 0 150
Feet

Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2[E
Image from © 2011 Google™

Figure 2-3
Berwick Creek Bed, Bank and Surface Water Sampling Locations

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Date: August 4, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure2-3_BerwickCreekBedBankandSurfaceWater.mxd

Legend

SW-10 Surface Water

CS-2 Surface Water Samples (2007)

Estimated PCE Concentration Boundary (Dashed Where Inferred - Contour Values in ug/L)

Creek Flow Direction

N

450 0 450
Feet

Sources:
1. Paramatrix (March, 2010)
2. [Ecology and Environment, Inc. 2002]
Image from © 2011 Google™

Figure 2-4
Dillenbaugh Creek Surface Water Sampling Locations

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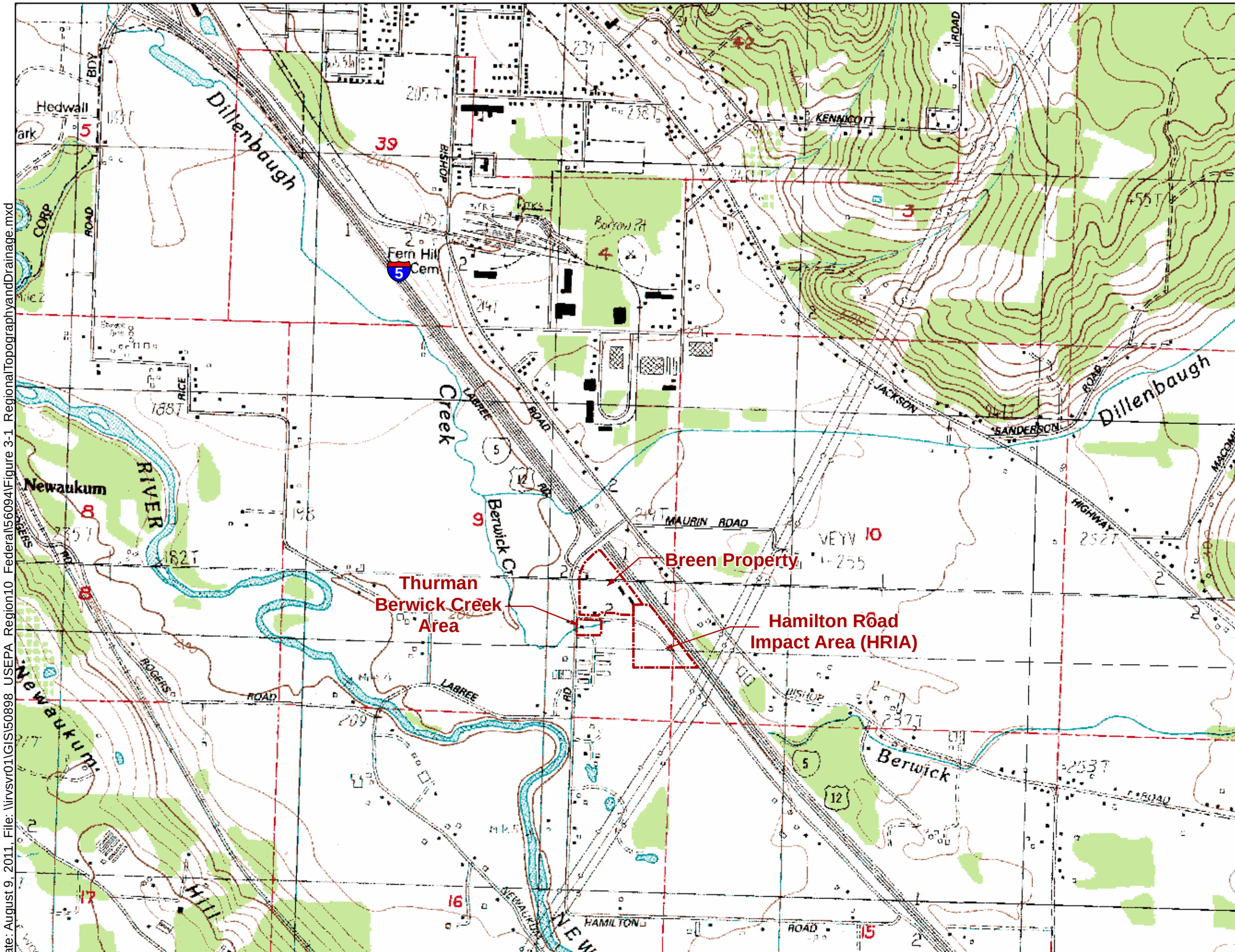
Date: August 9, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 2-4_Dillenbaugh Creek Surface Water.mxd



Legend

Project Site Boundary

N

1,250 0 1,250
Feet

Sources:
1. Paramatrix (March, 2010)
Reference:
7.5' USGS Quadrangle - Centralia, Washington. Dated 1985 and 7.5' USGS Quadrangle - Napavine, Washington. Dated 1985

Figure 3-1
Regional Topography and Drainage

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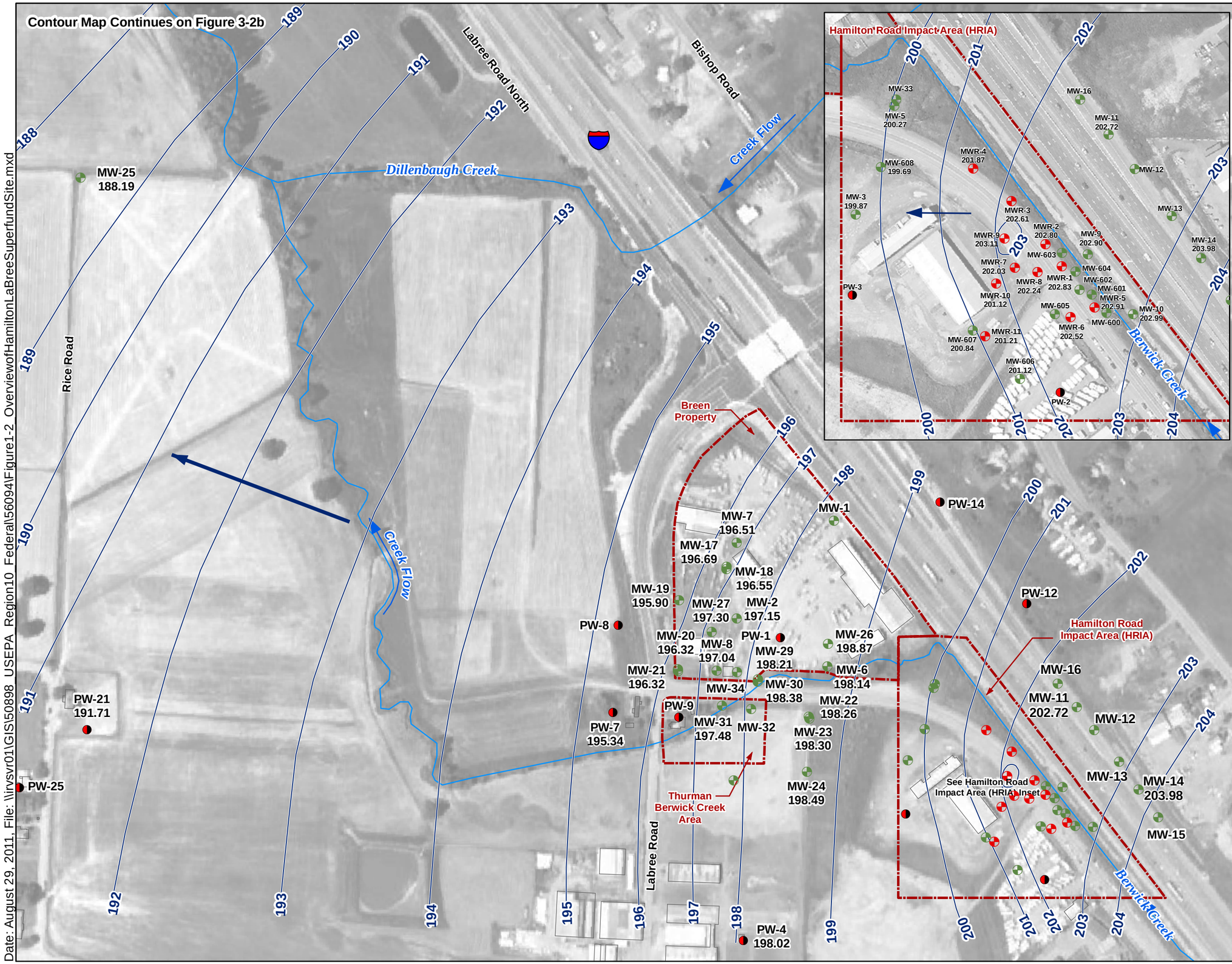
Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 3-1_RegionalTopographyandDrainage.mxd



Legend

- Project Site Boundary
- 191 — Potentiometric Surface Contour Line and Groundwater Level Elevation (November 2003)
- Creek Flow Direction
- Approximate Direction of Groundwater Flow
- Monitoring Well
- Monitoring Well/ Recovery Well
- Private Well

Sources:
1. Parametrix (March, 2010) [Farallon, 2004]
2. Image from ©2011 Google™

Figure 3-2a
Site-Wide Groundwater Elevation Contour Map - Shallow Aquifer
November 2003

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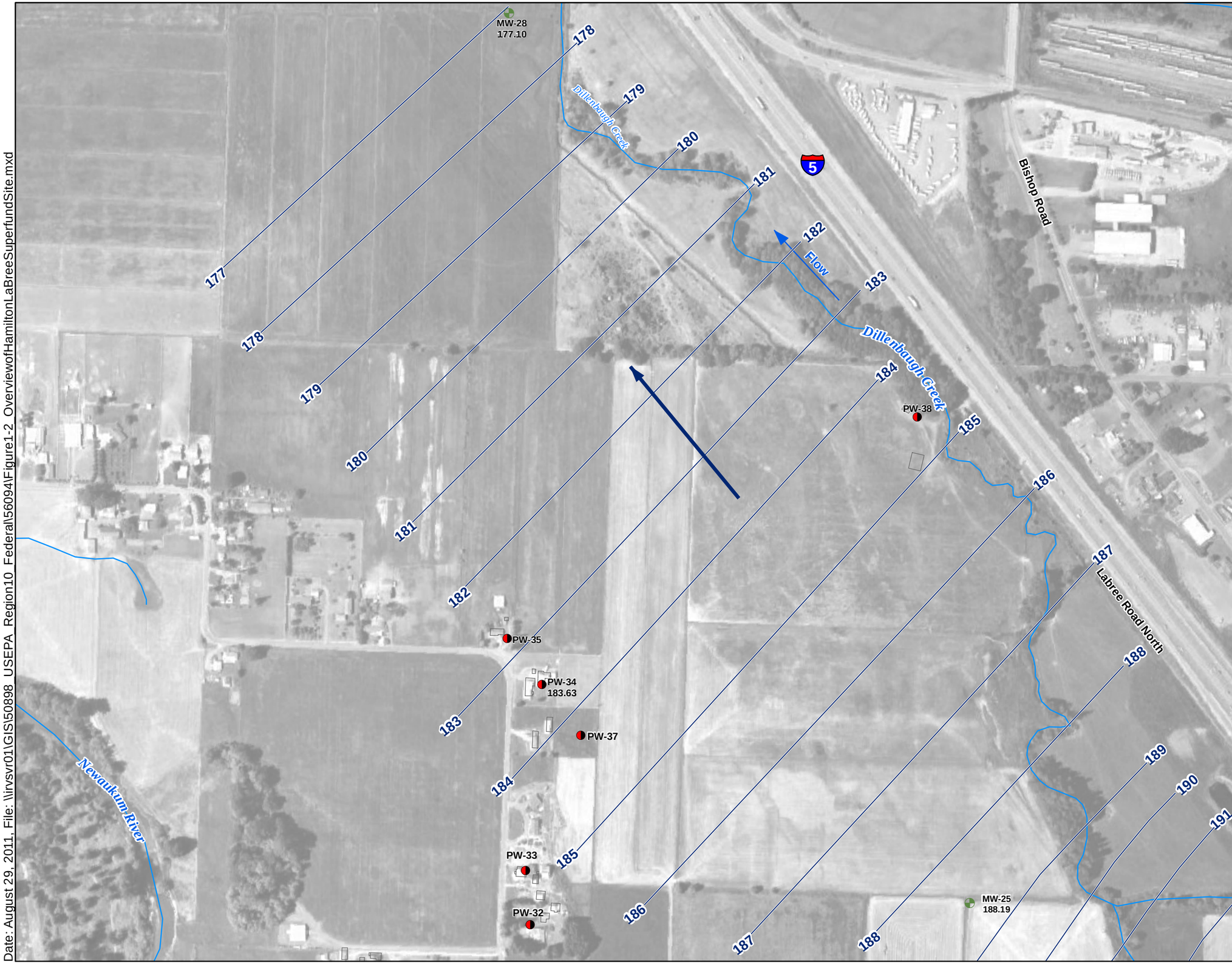
Hamilton / Labree Roads Superfund Site

Date: August 29, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure1-2_OverviewofHamiltonLaBreeSuperfundSite.mxd



Legend

- Project Site Boundary
- 182 — Potentiometric Surface Contour Line and Groundwater Level Elevation (November 2003)
- Creek Flow Direction
- Approximate Direction of Groundwater Flow
- Monitoring Well
- Private Well

N

400 0 400
Feet

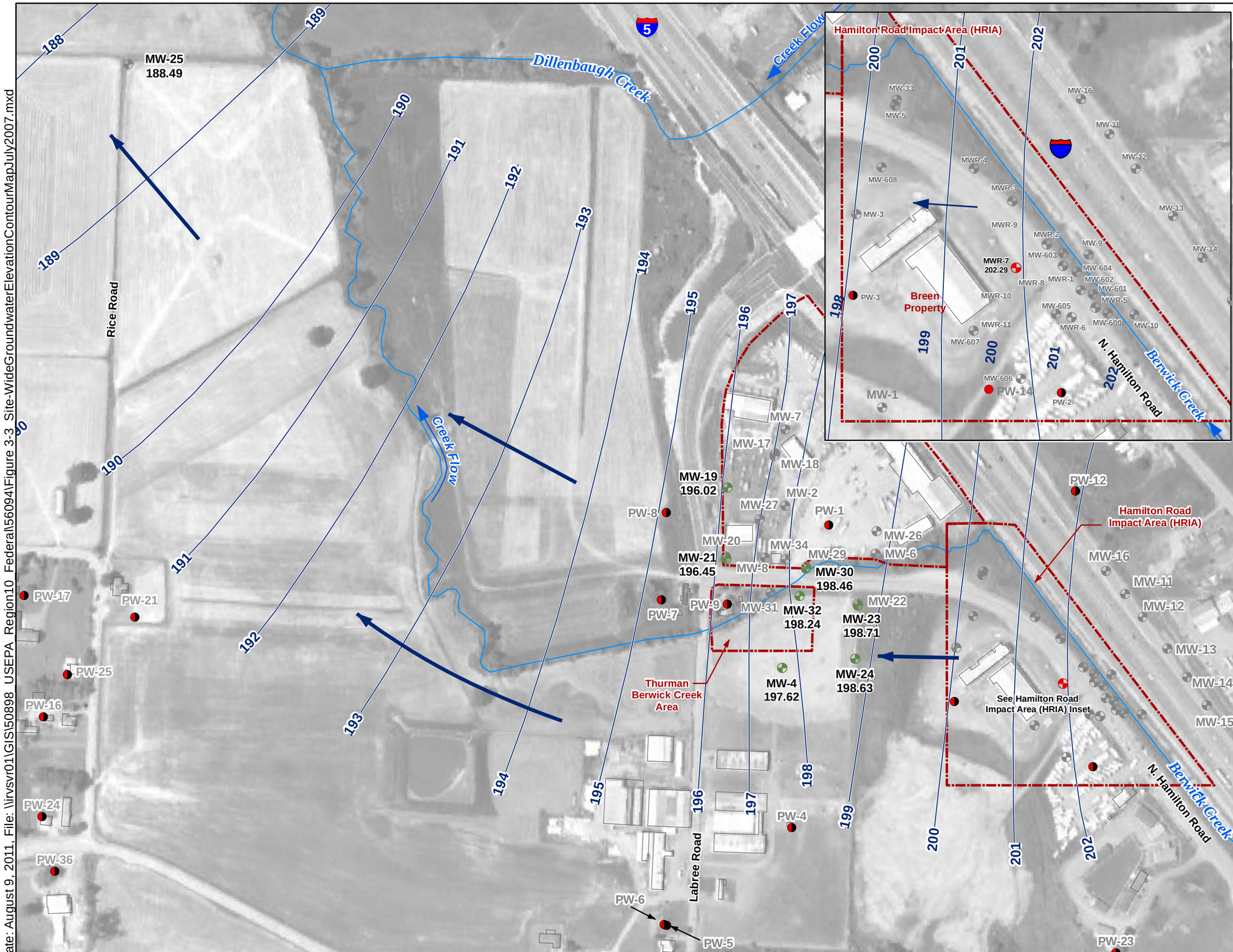
Sources:
1. Paramatrix (March, 2010) [Farallon, 2004]
2. Image from ©2011 Google™

Figure 3-2b
Site-Wide Groundwater Elevation Contour Map - Shallow Aquifer
November 2003

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 29, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure1-2_OverviewofHamiltonLaBreeSuperfundSite.mxd



Legend

- Project Site Boundary
- 191 — Potentiometric Surface Contour Line and Groundwater Level Elevation (July 2007)
- Creek Flow Direction
- Approximate Direction of Groundwater Flow
- Monitoring Well
- Monitoring Well/ Recovery Well
- Monitoring Well (Not Used in Contours)
- Monitoring Well/ Recovery Well (Not Used in Contours)
- Private Well (Not Used In Contours)

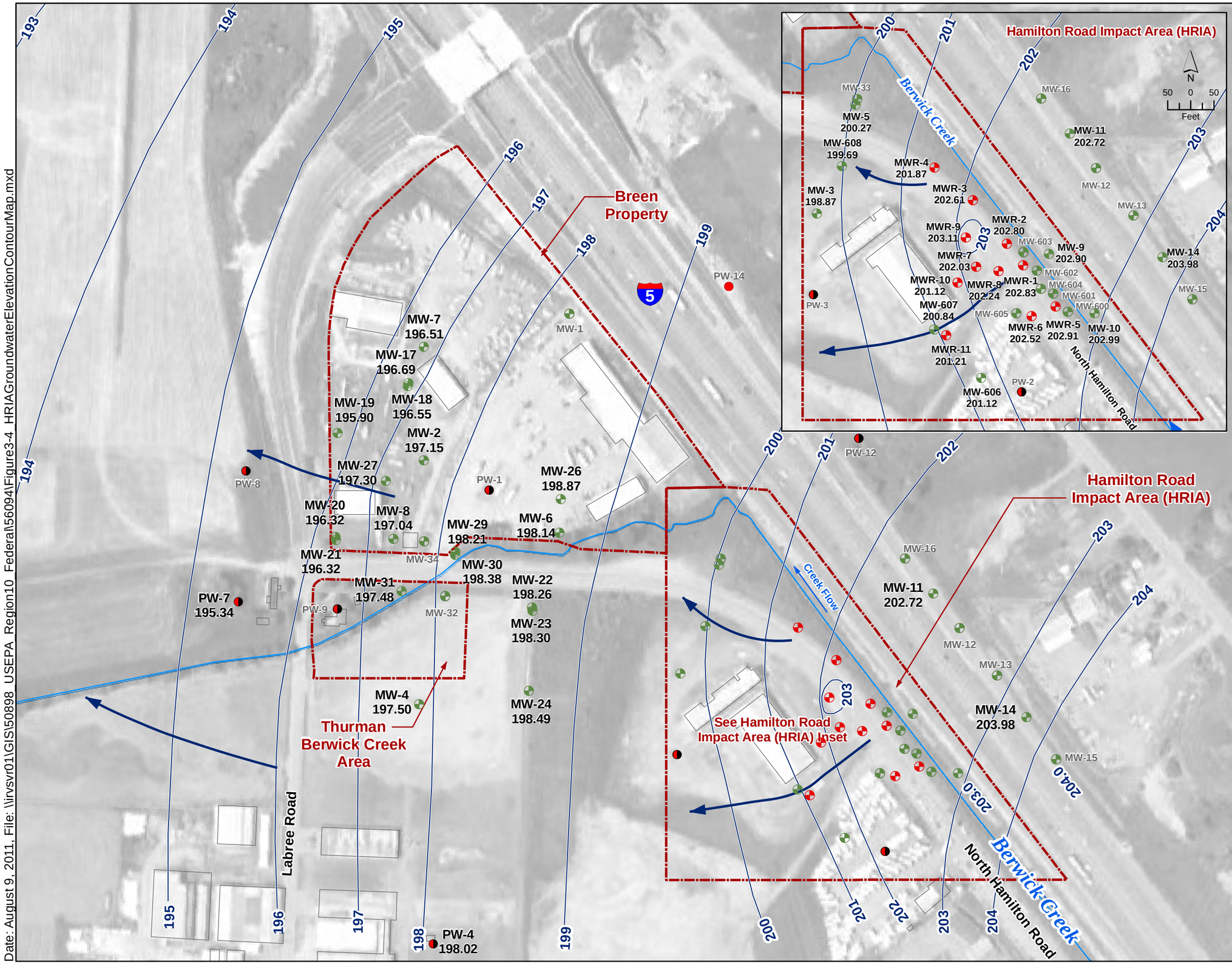
Sources:
1. Paramatrix (March, 2010) [Farallon, 2004]
2. Image from © 2011 Google™

Figure 3-3
Site-Wide Groundwater Elevation Contour Map
July 2007

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 3-3_Site-WideGroundwaterElevationContourMapJuly2007.mxd



Legend

- Project Site Boundary
- —198— Potentiometric Surface Contour Line and Groundwater Level Elevation (November 2003)
- Creek Flow Direction
- Approximate Direction of Groundwater Flow
- Monitoring Well
- Monitoring Well/ Recovery Well
- Private Well
- Monitoring Well (Not Used in Contours)
- Monitoring Well/ Recovery Well (Not Used in Contours)
- Private Well (Not Used In Contours)

Sources:
1. P aramatrix (March, 2010)
arallon, 2004]
[F

Figure 3-4
HRIA Groundwater Elevation Contour Map
November 2003

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Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure3-4_HRIAGroundwaterElevationContourMap.mxd

Legend

- Project Site Boundary
- Hot Spot
- Creek Channel
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Reconnaissance Boring
- Surface Water

N

100 0 100
Feet

Sources:
1. Paramatrix (March, 2010)
2. Image from © 2011 Google™

Figure 4-1
HRIA Hot Spots
Site Map

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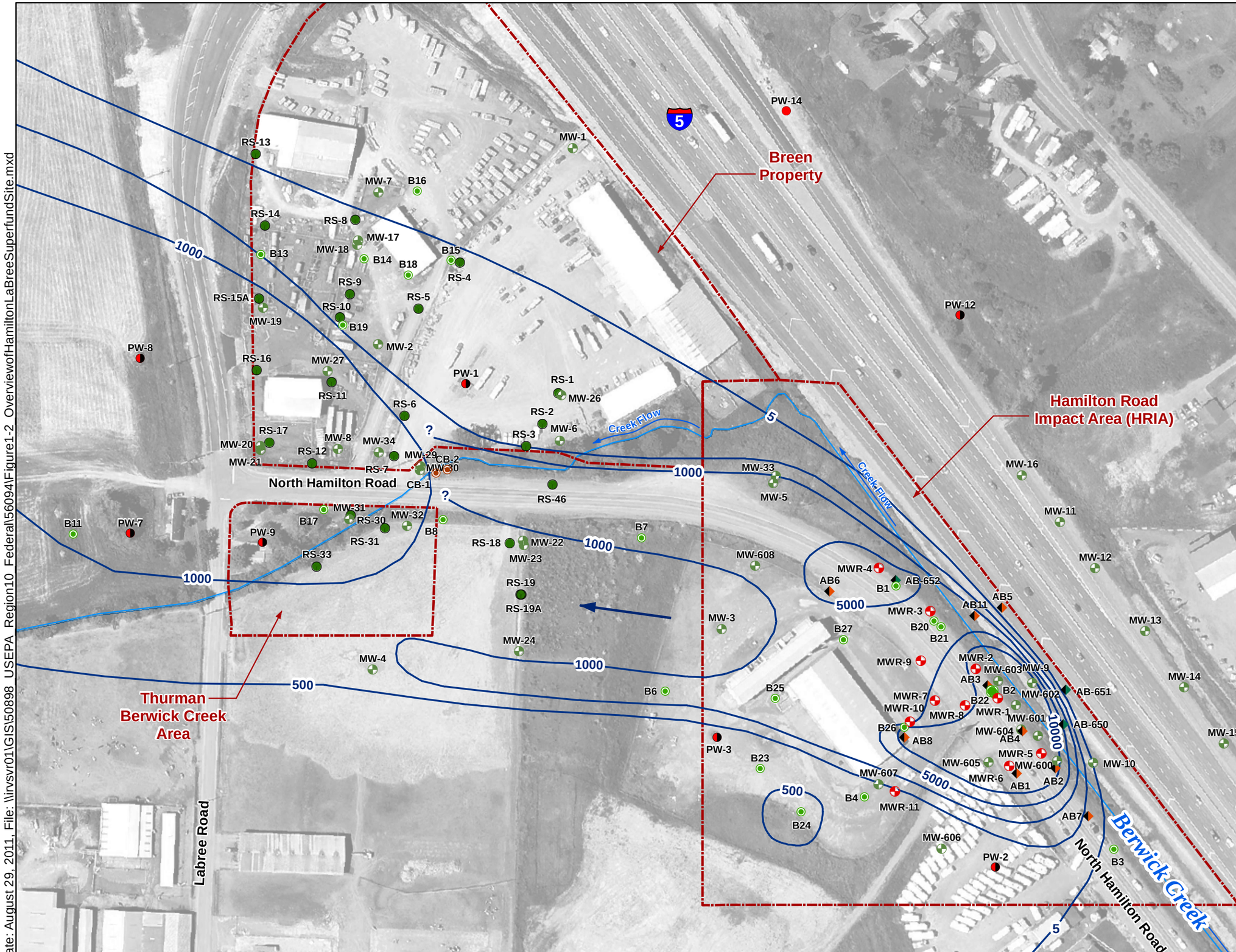
Date: August 4, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure4-1_HRIAHotSpots_SiteMap.mxd



Legend

- Project Site Boundary
- 1000 — 2007 Groundwater PCE Isoconcentration Lines in Shallow Aquifer (ug/L)
- Creek Flow Direction
- Approximate Direction of Groundwater Flow
- Monitoring Well
- Monitoring Well/ Recovery Well
- Private Well
- Monitoring Well (Not Used in Contours)
- Monitoring Well/ Recovery Well (Not Used in Contours)
- Private Well (Not Used In Contours)

N

150 0 150
Feet

Sources:
1. Paramatrix (March, 2010) [Farallon, 2004]
2. Image from © 2011 Google™

Figure 4-2
HRIA Groundwater
PCE Isoconcentration Plot
July 2007

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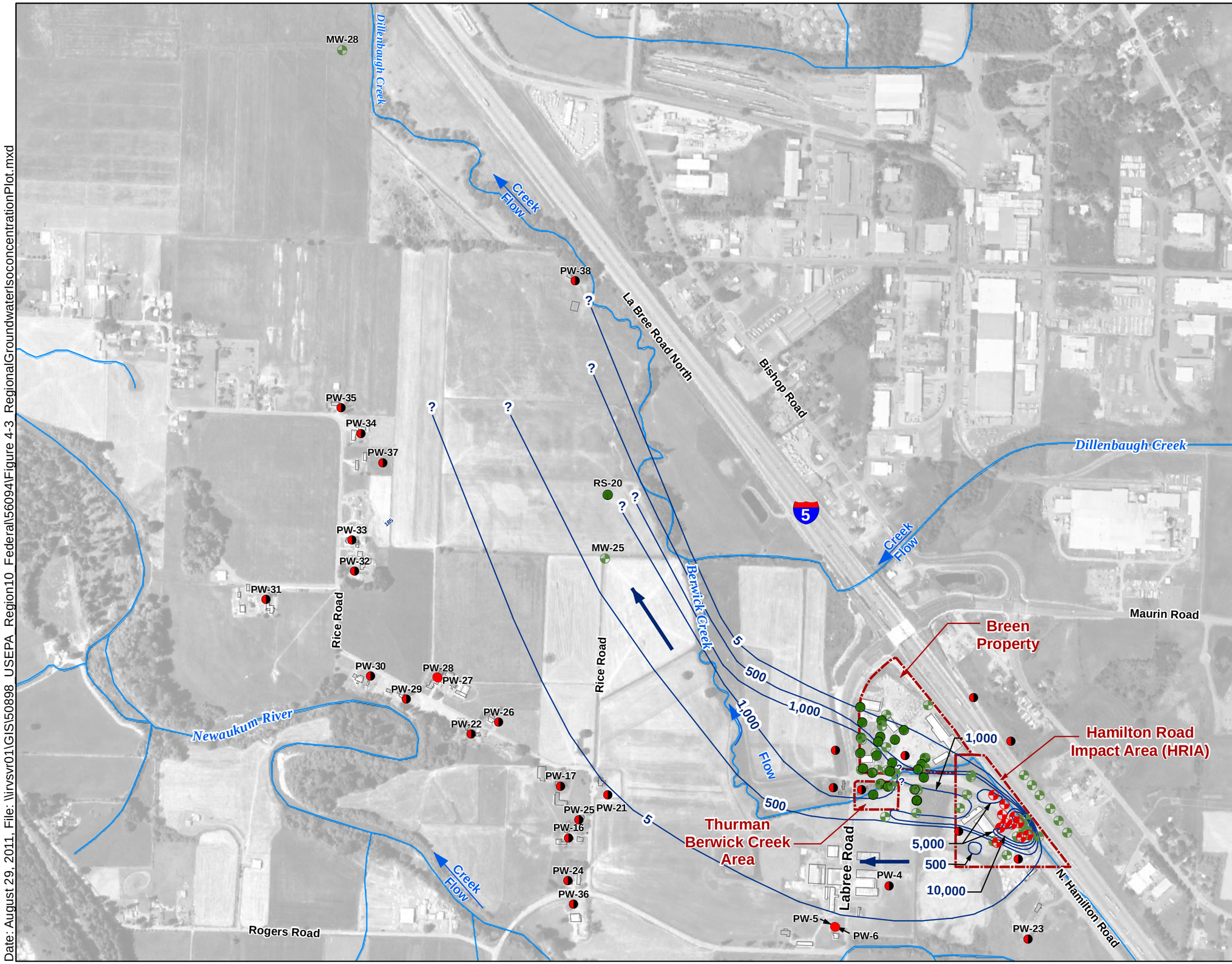
Hamilton / Labree Roads Superfund Site

Date: August 29, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure1-2_OverviewofHamiltonLaBreeSuperfundSite.mxd



Legend

- Project Site Boundary
- 500 — 2007 Groundwater PCE Isoconcentration Lines in Shallow Aquifer (ug/L)
- Creek Flow Direction
- Approximate Direction of Groundwater Flow
- Monitoring Well
- Monitoring Well/ Recovery Well
- Private Well
- Reconnaissance Boring

N

700 0 700
Feet

Sources:
1. Paramatrix (March, 2010) [Farallon, 2004]
2. For well location IDs for Breen Property, HRIA and Thurmasn Creek Areas, see Figure 4-2.
3. Image from © 2011 Google™

Figure 4-3
Regional Groundwater
PCE Isoconcentration Plot
July 2007

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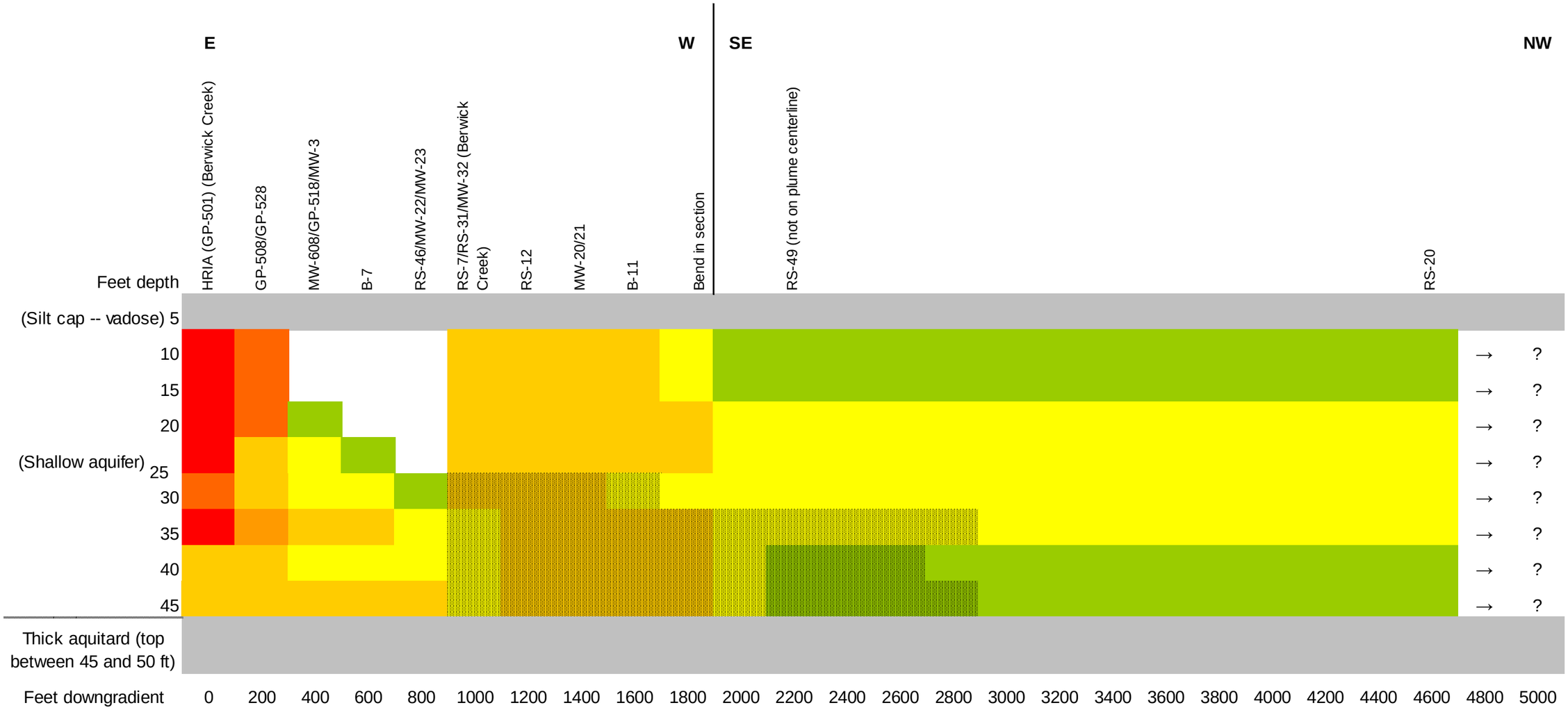
Hamilton / Labree Roads Superfund Site

Date: August 29, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 4-3_RegionalGroundwaterIsoconcentrationPlot.mxd



> 100 ppm
10-100 ppm
5-10 ppm
1-5 ppm
500-1000 ppb
100-500 ppb
5-100 ppb
< 5 ppb

Conceptual cross section through Breen and Thurman Properties with east (upgradient) to the left and west (downgradient) to the right
25x vertical exaggeration

Estimated zones where HRIA and Breen/Thurman plumes are mixed; downgradient extent of mixed zone is unknown

Sources:
1. EPA (July, 2011)

Figure 4-4
Conceptual Plume Centerline Section

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure4-4_ConceptualPlumeCenterlineSection.mxd

Hamilton/Labree "Bottleneck" N-S Transect

North **South**

Well(s)	RS-1	RS-2	RS-3	RS-46 MW-22		RS-18 MW-22/23		RS-19		MW-24						RS-24	
Feet	0	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	Avg Conc
5 (WT)																	
10	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	**400**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**12**	26
25	300	120	200	**2.7**	20	**38**	25	10	50	150	100	100	100	100	100	60	92
30	**260**	**120**	**300**	**200**	400	**640**	300	**15**	200	400	450	400	300	250	150	100	280
35	200	100	300	**1000**	900	800	450	90	400	650	600	550	450	350	200	**150**	449
40	140	90	300	**1000**	900	**870**	500	180	500	**910**	800	650	500	350	250	150	506
45	**84**	**72**	**290**	**1200**	800	**560**	400	**260**	550	**910**	800	650	500	350	250	**150**	489

>1 ppm
> 500 ppb
> 100 ppb
> 50 ppb
> 10 ppb
< 10 ppb

Approx. 30 X Vertical Exaggeration

Silt Cap (In some places, bottom is a little below 5 ft)
Aquitard (In some places, top is a little below 45 ft, and samples below 45 ft may be plotted as 40-45 ft)
GW data from wells or depth-specific boring samples are plotted in **bolded black font**; interpolated values are plotted in blue.
Concentrations below detection limit (typically 0.2 µg/L) are plotted as 0.

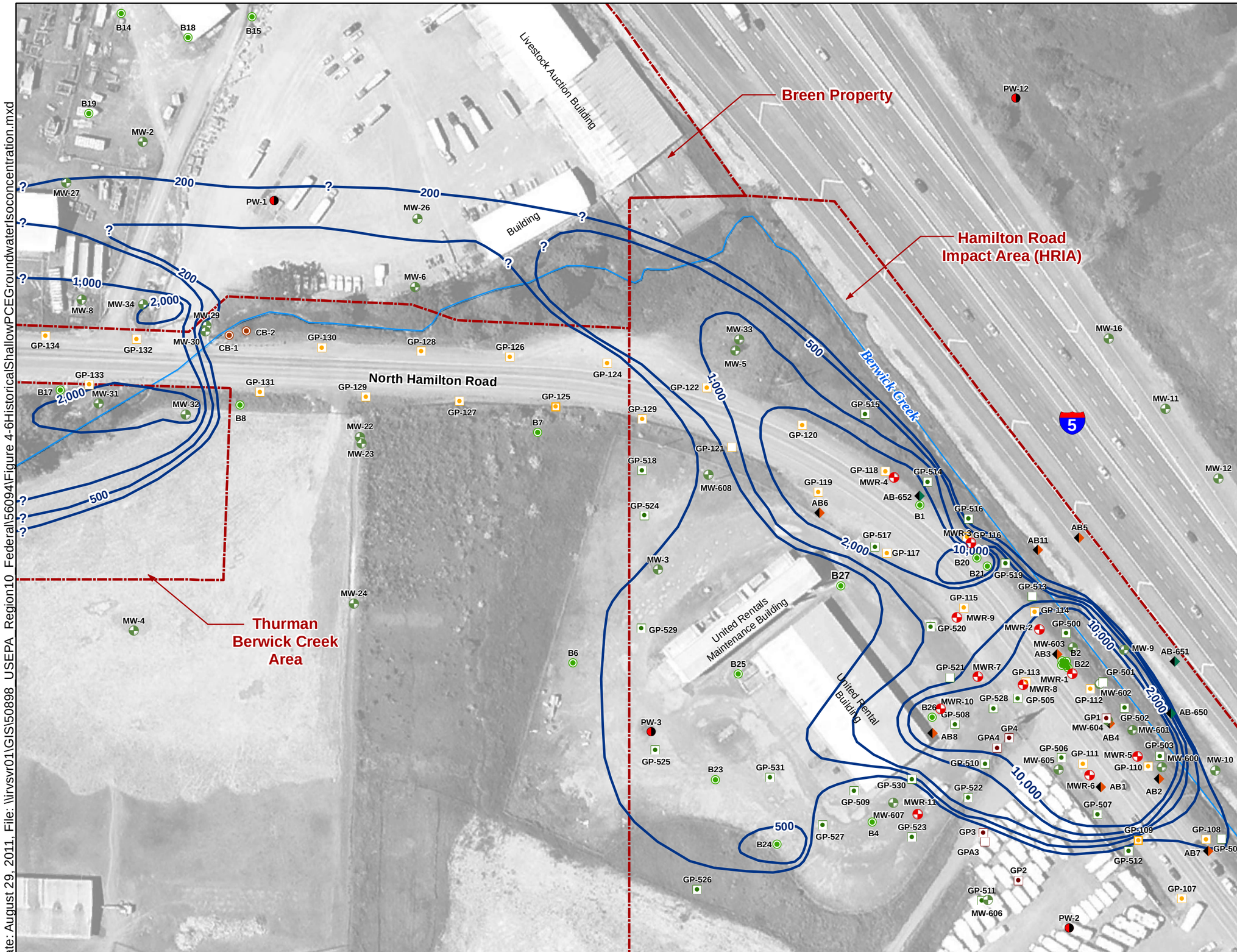
Sources:
1. EPA (July, 2011)

Figure 4-5
"Bottleneck" N-S Transect

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure4-5_Bottleneck_N-STransect.mxd



Legend

- Project Site Boundary
- 200 — Historical Groundwater Shallow (<= 25 feet depth) for PCE Isoconcentration in ug/L
- Auger Boring
- Auger Boring
- Soil Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Reconnaissance Boring
- Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring

N

100 0 100
Feet

Notes:
1. Contours are based on maximum groundwater concentrations and do not represent a single time-specific sampling event
2. Image from ©2011 Google™

Figure 4-6
Hamilton / Labree
Upper Zone of Shallow Aquifer
PCE Isoconcentration Plot - Historical

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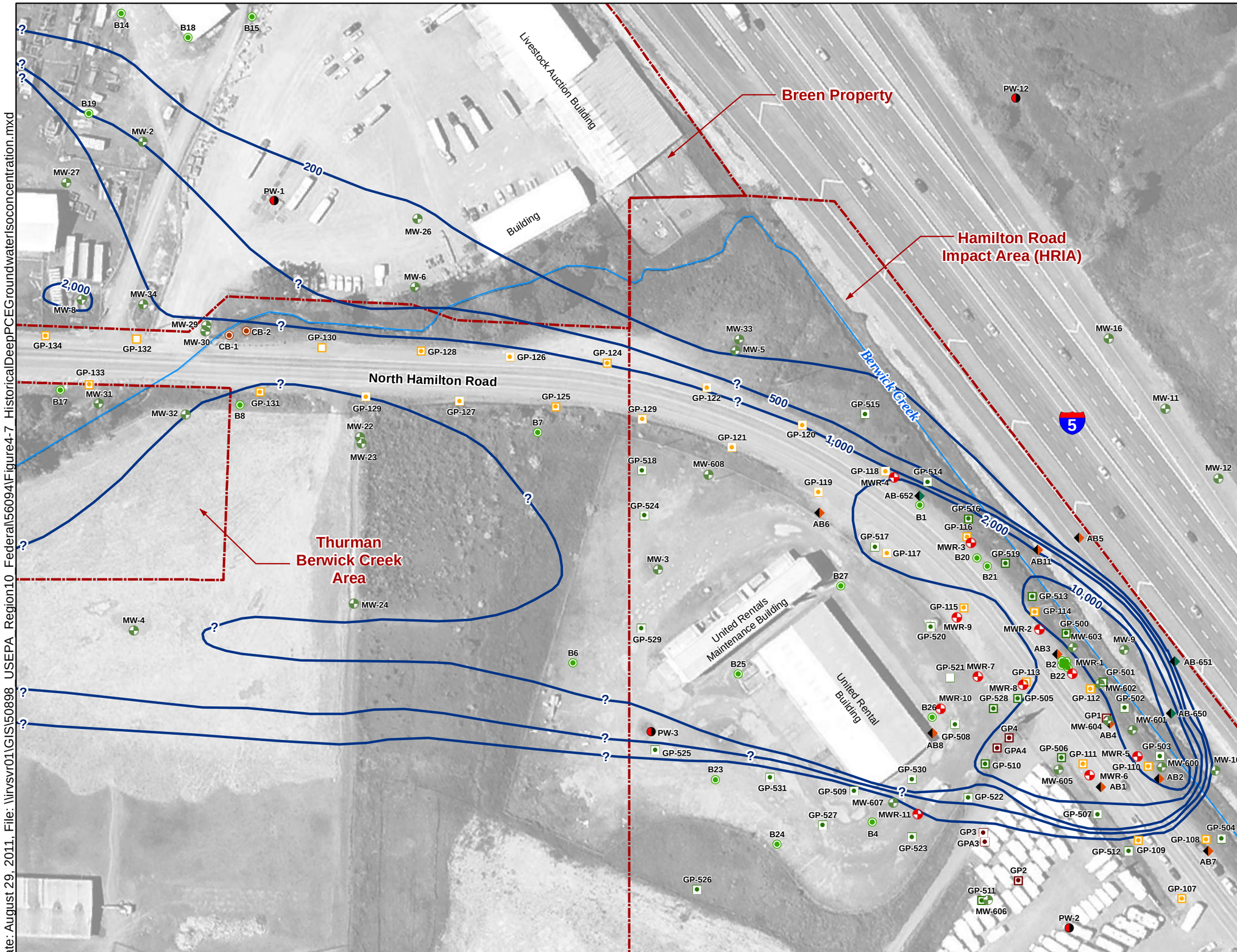
Hamilton / Labree Roads Superfund Site

Date: August 29, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 4-6HistoricalShallowPCEGroundwaterIsoconcentration.mxd



Legend

- Project Site Boundary
- —200— Historical Groundwater Deep (> 25 feet depth) for PCE Isoconcentration in ug/L
- Auger Boring
- Auger Boring
- Soil Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Reconnaissance Boring
- Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring

N

100 0 100
Feet

Notes:

1. PCE concentrations for some wells were ignored due to the sample being located in a transition zone between the shallow and deep zones of the shallow aquifer. It is presumed that these locations underestimate true maximum concentrations in the deep zone, especially downgradient of the United Rentals Building.
2. Contours are based on maximum groundwater concentrations and do not represent a single time-specific sampling event.
3. Image from ©2011 Google™

Figure 4-7
Hamilton / Labree Lower Zone of Shallow Aquifer
PCE Isoconcentration Plot - Historical

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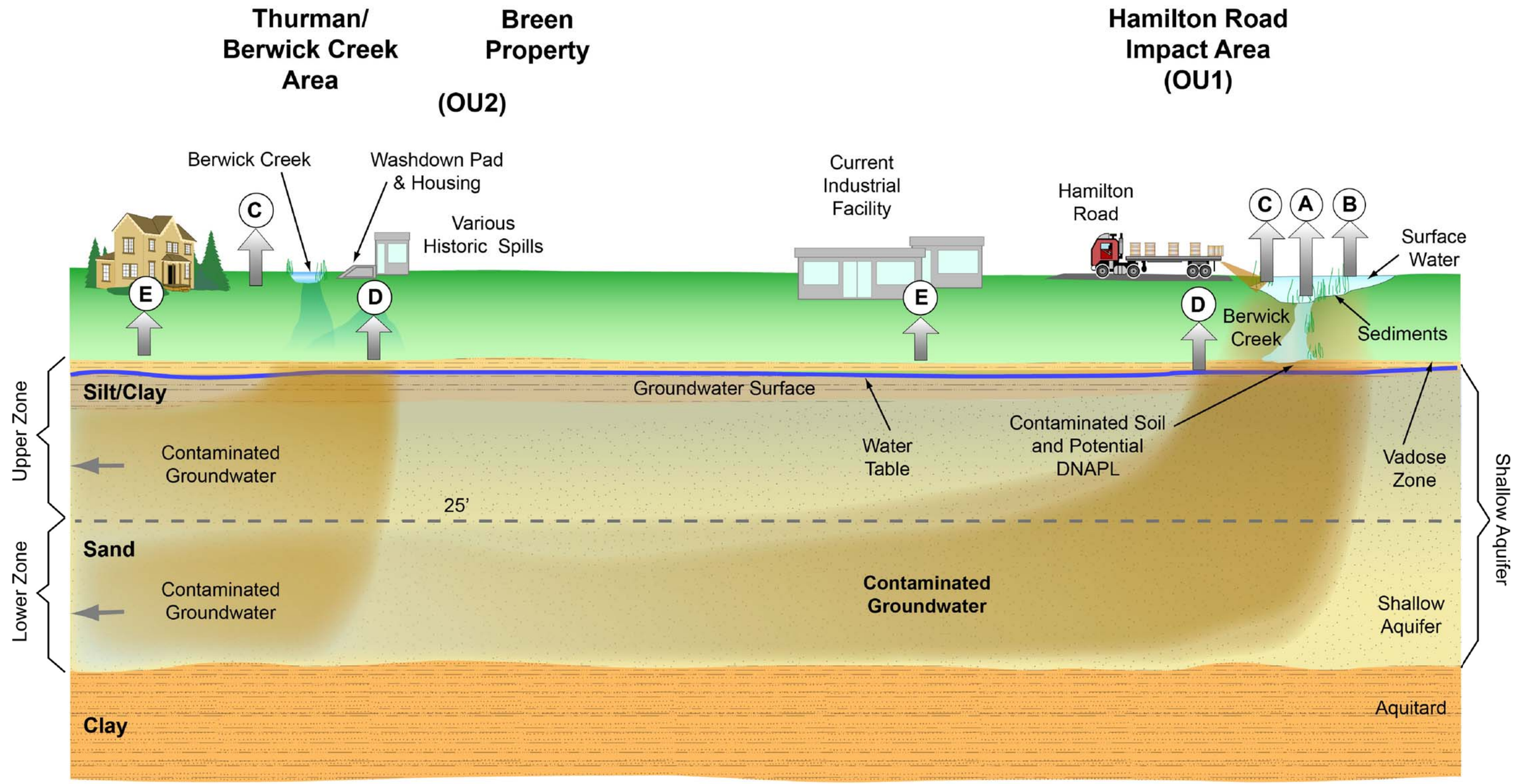
Hamilton / Labree Roads Superfund Site

Date: August 29, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure4-7_HistoricalDeepPCEGroundwaterIsoconcentration.mxd



Legend

A - Sediment – Ingestion/Direct Contact (Residential, Aquatic, Terrestrial)
B - Surface Water – Ingestion/Direct Contact (Residential, Aquatic, Terrestrial)
C - Outdoor Air – Inhalation (Residential, Terrestrial)
D - Groundwater – Ingestion (Occupational, Residential)
E - Indoor Air – Inhalation (Occupational, Residential)

Groundwater flows from right to left, and slightly into the figure (west-northwest).
The two groundwater plumes commingle down gradient of the sources.

North is into page

Not to scale

Conceptual Model

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Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure5-1_ConceptualGroundwater.mxd

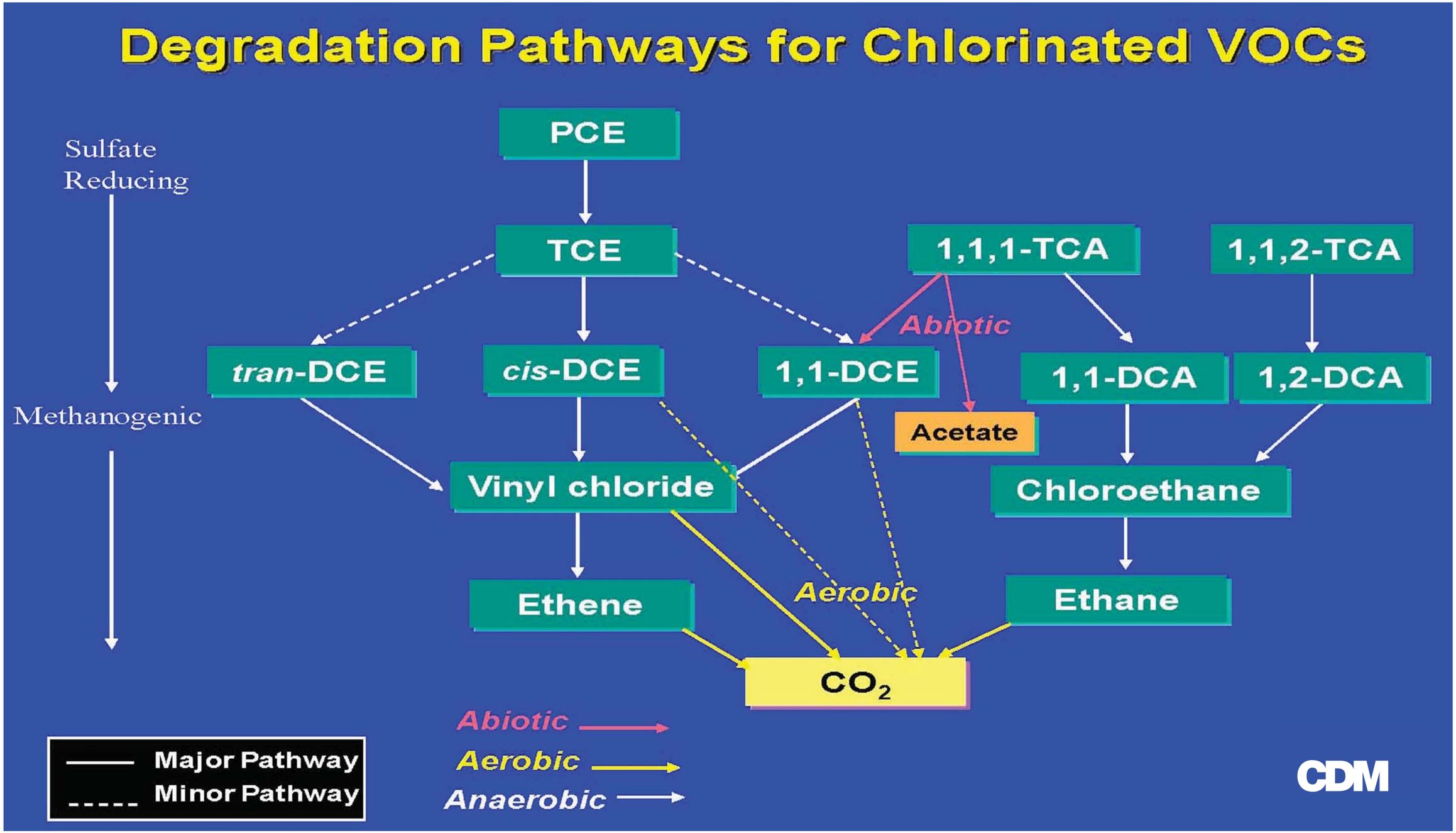

Figure 5-2
Chlorinated VOCs
Degradation Pathways

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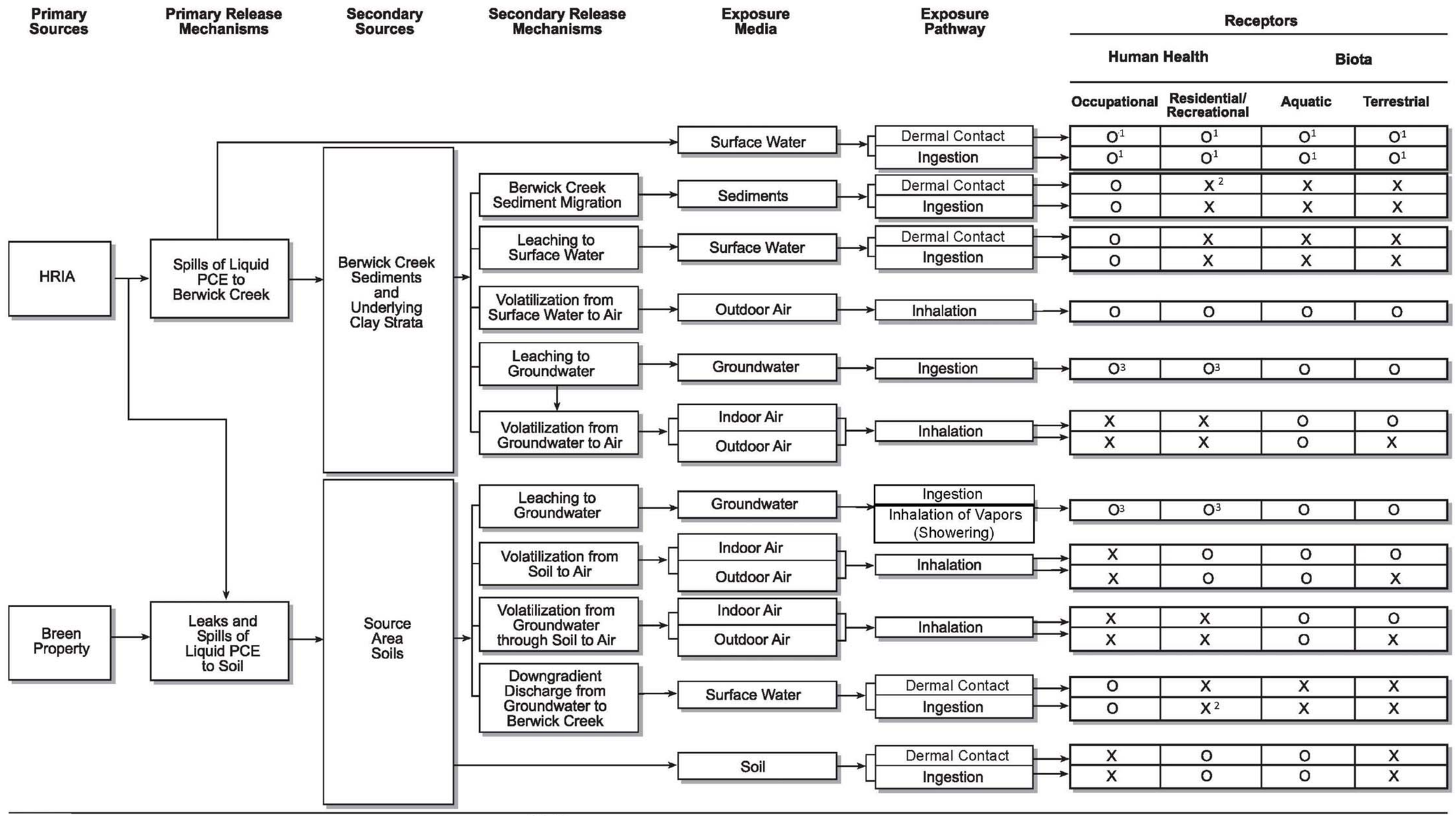
Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 5-2_ChlorinatedVOCsDegradationPathways.mxd



NOTES:
X = Potentially Complete Exposure Pathway
O = Incomplete Exposure Pathway
1 = Initial mass of dissolved PCE in surface water moved downstream and is no longer present.P
2 = Pathways addressed are ingestion of surface water and consumption of fish.
3 = Groundwater ingestion and inhalation of vapors through showering is currently an incomplete exposure pathway because drinking water is obtainted from the municipal water supply.

Sources:
1. Paramatrix (March, 2010) [Ecology and Environment, Inc. 2002]

Figure 6-1
Conceptual Site Model

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Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure 6-1_Conceptual Site Model.mxd

Appendix A
Analytical Data Tables

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
AB-1	26-Jun-00	0	4	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-1	26-Jun-00	4	8	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-1	26-Jun-00	20	24	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.066 U	0.066 U	0.066 U
AB-1	26-Jun-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-1	26-Jun-00	44	48	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.34 U	0.068 U	0.068 U	0.068 U	0.068 U
AB-2	27-Jun-00	4	8	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.059 U	0.059 U	0.059 U
AB-2	27-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-2	27-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-3	28-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-3	28-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-3	28-Jun-00	24	28	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.29 U	0.058 U	0.058 U	0.058 U	0.058 U
AB-4	28-Jun-00	4	8	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.066 U	0.066 U	0.066 U
AB-4	28-Jun-00	12	16	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.34 U	0.068 U	0.068 U	0.068 U	0.068 U
AB-4	28-Jun-00	20	24	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-4	28-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-4	28-Jun-00	44	48	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-5	29-Jun-00	12	16	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.3 U	0.061 U	0.061 U	0.061 U	0.061 U
AB-5	29-Jun-00	28	32	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-5	29-Jun-00	44	48	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.059 U	0.059 U	0.059 U
AB-6	29-Jun-00	12	16	mg/kg	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.28 U	0.056 U	0.056 U	0.056 U	0.056 U
AB-6	29-Jun-00	24	28	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.3 U	0.061 U	0.061 U	0.061 U	0.061 U
AB-6	29-Jun-00	44	48	mg/kg	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.36 U	0.072 U	0.072 U	0.072 U	0.072 U
AB-7	1-Jul-00	16	20	mg/kg	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.29 U	0.057 U	0.057 U	0.057 U	0.057 U
AB-7	1-Jul-00	24	28	mg/kg	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.35 U	0.069 U	0.069 U	0.069 U	0.069 U
AB-7	1-Jul-00	40	44	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.059 U	0.059 U	0.059 U
AB-8	29-Jun-00	8	12	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.32 U	0.064 U	0.064 U	0.064 U	0.064 U
AB-8	1-Jul-00	32	36	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.059 U	0.059 U	0.059 U
AB-8	1-Jul-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
AB-9	30-Jun-00	12	16	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.066 U	0.066 U	0.066 U
AB-9	30-Jun-00	24	28	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-9	30-Jun-00	40	44	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.32 U	0.065 U	0.065 U	0.065 U	0.065 U
AB-10	30-Jun-00	20	24	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-10	30-Jun-00	32	36	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
AB-10	30-Jun-00	40	44	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.29 U	0.058 U	0.058 U	0.058 U	0.058 U
AB-11	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ
AB-11	24-Aug-00	15	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
AB-11	24-Aug-00	25	35	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.00029 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ
B21	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B21	27-Apr-98	8		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B22	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B22	27-Apr-98	8		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B23	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B24	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B25	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B26	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
B27	27-Apr-98	4		mg/kg		0.05 U		0.05 U	0.05 U	0.05 U								0.05 U	
CB-1	14-Apr-04	0.67	1	mg/kg	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U		0.0076 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U
CB-2	14-Apr-04	0.67	1	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U		0.007 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U
CC-3	2-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-2	2-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0063 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-1	2-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-4	2-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
CC-5	4-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-6	4-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-7	4-Sep-03	1	1	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U		0.0062 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
CC-9	4-Sep-03	1	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-8	4-Sep-03	0	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
DB-1	14-Apr-04	0.67	1	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
EX-01	28-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-01	28-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-02	28-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-03	28-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-04	22-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-05	22-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-06	22-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-07	16-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-08	16-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-09	16-Sep-99	12	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-10	15-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-11	15-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-12	15-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-13	22-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-13	22-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-14	22-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-14	22-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-15	22-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-15	22-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-16	28-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-16	28-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-17	28-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-17	28-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-18	28-Sep-99	10	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-19	28-Sep-99	10	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-20	29-Sep-99	20	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-21	15-Sep-99	4	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX-22	22-Sep-99	10	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	15-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	15-Sep-99	9	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	15-Sep-99	10	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	22-Sep-99	10	0	mg/kg	0.05 U	0.1	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	22-Sep-99	10	0	mg/kg	0.05 U	3.8	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	24-Sep-99	12	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	24-Sep-99	14	0	mg/kg	0.05 U	0.05 U	0.05 U	0.07	0.14	0.05 U								0.05 U	
EX	24-Sep-99	16	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
EX	28-Sep-99	18	0	mg/kg	0.05 U	0.05 U	0.05 U	0.12	0.05 U	0.05 U								0.05 U	
Excavation	29-Sep-99	0	0	mg/kg	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U								0.05 U	
GP-2	20-Jun-00	8	12	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.06 U
GP-2	20-Jun-00	16	20	mg/kg	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.54 U	0.11 U	0.11 U	0.11 U	0.11 U
GP-2	20-Jun-00	24	28	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.066 U	0.066 U	0.066 U
GP-3	21-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
GP-3	21-Jun-00	16	20	mg/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.52 U	0.1 U	0.1 U	0.1 U	0.1 U
GP-3	21-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
GP-4	21-Jun-00	12	16	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.32 U	0.065 U	0.065 U	0.065 U	0.065 U
GP-4	21-Jun-00	30	32	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.32 U	0.064 U	0.064 U	0.064 U	0.064 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
GP-A3	26-Jun-00	44	48	mg/kg	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.33 U	0.067 U	0.067 U	0.067 U	0.067 U
GP-A4	26-Jun-00	48	52	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.066 U	0.066 U	0.066 U
GP-102	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-104	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-106	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-108	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-110	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-112	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-114	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-116	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-118	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-120	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-122	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-124	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-126	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-128	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-130	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-132	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-134	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-136	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-135	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-133	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-131	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-129	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-127	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-125	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-123	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-121	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-119	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-117	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-115	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-113	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-111	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-109	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-107	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-105	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-103	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-138	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-140	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-142	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-144	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-146	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-148	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-147	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-145	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-142	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-141	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-139	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-137	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-154	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-155	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-175	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
GP-174	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-170	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-176	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-177	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-178	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-179	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-180	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-181	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-182	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-183	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-184	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-185	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-186	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-187	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-188	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-189	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-190	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-173	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-171	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-169	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-168	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-167	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-166	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-165	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-164	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-163	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-162	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-161	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-160	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-159	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-158	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-157	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-191	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.005	0.007 U	0.048 U	0.001 U	0.001 U	0.001 U
GP-172	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.094 U	0.001 U	0.001 U	0.001 U
GP-153	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.042 U	0.001 U	0.001 U	0.001 U
GP-152	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.044 U	0.001 U	0.001 U	0.001 U
GP-151	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-150	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 UJ	0.001 UJ	0.001 UJ	0.007 UJ	0.001 UJ	0.001 U	0.001 U	0.001 U
GP-149	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-156	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U
MW-1	18-Feb-97	15	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-1	18-Feb-97	35	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-1	18-Feb-97	40	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-1	18-Feb-97	45	0	mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-2	20-Feb-97	15	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-2	20-Feb-97	30	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-2	20-Feb-97	40	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-2	20-Feb-97	45	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-3	18-Feb-97	20		mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-3	18-Feb-97	30		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-3	18-Feb-97	35		mg/kg		0.004 U	0.004 U	0.001 J	0.004 U	0.004 U								0.004 U	0.004 U
MW-3	18-Feb-97	46		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
MW-4	18-Feb-97	10		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-4	18-Feb-97	30		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-4	18-Feb-97	35		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-4	18-Feb-97	40		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-5	28-Apr-97	25		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-5	28-Apr-97	35		mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-5	28-Apr-97	40		mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-5	28-Apr-97	45		mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-6	30-Apr-97	25	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-6	30-Apr-97	30	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-6	30-Apr-97	35	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-6	30-Apr-97	45	0	mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-7	2-May-97	30	0	mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-7	2-May-97	35	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-7	2-May-97	40	0	mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-8	6-May-97	0	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-8	6-May-97	5	0	mg/kg		0.004 U	0.004 U	0.004 U	0.004 U	0.004 U								0.004 U	0.004 U
MW-8	6-May-97	35	0	mg/kg		0.006 U	0.006 U	0.006 U	0.006 U	0.006 U								0.006 U	0.006 U
MW-8	6-May-97	40	0	mg/kg		0.003 U	0.003 U	0.003 U	0.003 U	0.003 U								0.003 U	0.003 U
MW-9	25-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ
MW-9	25-Aug-00	15	25	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.062 U
MW-9	25-Aug-00	25	30	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ		0.068 UJ	0.34 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ
MW-9	25-Aug-00	30	35	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.32 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ
MW-9	25-Aug-00	35	40	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ
MW-9	25-Aug-00	40	45	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ
MW-9	25-Aug-00	45	50	mg/kg	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.33 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ
MW-10	26-Aug-00	0	10	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ
MW-10	26-Aug-00	10	15	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
MW-10	26-Aug-00	15	20	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ
MW-10	26-Aug-00	20	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
MW-10	26-Aug-00	25	30	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.28 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ
MW-10	26-Aug-00	30	35	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.28 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ
MW-10	26-Aug-00	35	40	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ
MW-10	26-Aug-00	40	45	mg/kg	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.35 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ
MW-18	18-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
MW-18	18-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-18	18-Jul-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-21	22-Jul-02	5	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0061 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-21	22-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-21	22-Jul-02	43	0	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U
MW-19	25-Jul-02	5	0	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U
MW-19	25-Jul-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
MW-19	25-Jul-02	43	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
MW-11 SB05	29-Jan-01	5	6.5	mg/kg	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	330 U	66 U	66 U	66 U	66 U
MW-11 SB15	29-Jan-01	15	16.5	mg/kg	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	320 U	64 U	64 U	64 U	64 U
MW-11 SB50	29-Jan-01	50	51.5	mg/kg	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	340 U	68 U	68 U	68 U	68 U
MW-12 SB05	30-Jan-01	5	6.5	mg/kg	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	320 U	64 U	64 U	64 U	64 U
MW-12 SB15	30-Jan-01	15	16.5	mg/kg	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	320 U	65 U	65 U	65 U	65 U
MW-12 SB49	30-Jan-01	49	50.5	mg/kg	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	320 U	65 U	65 U	65 U	65 U
MW-13 SB15	30-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-13 SB20	20-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-13 SB49	30-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
MW-14 SB20	31-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-14 SB35	31-Jan-01	35	36.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-14 SB49	31-Jan-01	48.5	50	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-15 SB15	31-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-15 SB25	31-Jan-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-15 SB49	31-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-16 SB15	1-Feb-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-16 SB25	1-Feb-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-16 SB48	1-Feb-01	48	49.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U
MW-R8	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ
MW-R8	24-Aug-00	15	25	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ
MW-R8	24-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ
MW-R9	25-Aug-00	0	15	mg/kg	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.29 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ
MW-R9	25-Aug-00	15	25	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ
MW-R9	25-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ
MW-R10	27-Aug-00	0	20	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.29 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ
MW-R10	27-Aug-00	20	25	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ
MW-R10	27-Aug-00	25	35	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.34 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ
MW-R11	27-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ
MW-R11	27-Aug-00	15	25	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.32 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ
MW-R11	27-Aug-00	25	35	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
RS-1	9-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-1	9-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-1	9-Jul-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-2	10-Jul-02	5	0	mg/kg	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0013 U	0.032 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U
RS-2	10-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-2	10-Jul-02	45	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-5	11-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-5	11-Jun-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-8	10-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-8	10-Jun-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-8A	24-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-8A	24-Jun-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-8A	24-Jun-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0058 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-9	11-Jul-02	31	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-9	11-Jul-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-9	11-Jul-02	49	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0016	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-12	12-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-12	12-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0059 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-12	12-Jul-02	40	0	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0057 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
RS-16	1-Jul-02	43	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-31	3-Sep-03	14	15.5	mg/kg	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U		0.082 U	0.016 U	0.016 U	0.016 U	0.016 U
RS-31	3-Sep-03	17	18.5	mg/kg	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U		0.066 U	0.013 U	0.013 U	0.013 U	0.013 U
RS-30	4-Sep-03	18.5	20	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U		0.0057 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
SP-1	12-Aug-99	2.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-1	12-Aug-99	5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-1	12-Aug-99	7.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-2	12-Aug-99	4	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-2	12-Aug-99	9.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-3	12-Aug-99	3.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-3	12-Aug-99	7.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-4	18-Aug-99	12	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Di-bromoethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-propane
SP-4	18-Aug-99	6.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-5	18-Aug-99	11.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-5	18-Aug-99	6	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-6	18-Aug-99	11.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-6	18-Aug-99	7.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-7	18-Aug-99	11	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-7	18-Aug-99	6	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-8	18-Aug-99	11	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
SP-8	18-Aug-99	6	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-5	19-Aug-99	1.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-5	19-Aug-99	6	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-5	19-Aug-99	9	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-6	19-Aug-99	1.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-6	19-Aug-99	8	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-7	19-Aug-99	3	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U
TP-7	19-Aug-99	8.5	0	mg/kg			0.05 U		0.05 U	0.05 U							0.05 U	0.05 U	0.05 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
AB-1	26-Jun-00	0	4	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 U	0.06 U	0.06 U		0.06 U	0.06 U
AB-1	26-Jun-00	4	8	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 UJ	0.06 U	0.06 U		0.06 U	0.06 U
AB-1	26-Jun-00	20	24	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.33 U	0.066 U		0.066 U	0.066 U	0.33 U	0.33 UJ	0.066 U	0.066 U		0.066 U	0.066 U
AB-1	26-Jun-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 U	0.06 U	0.06 U		0.06 U	0.06 U
AB-1	26-Jun-00	44	48	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.34 U	0.34 U	0.068 U		0.068 U	0.068 U	0.34 U	0.076 J	0.068 U	0.068 U		0.068 U	0.068 U
AB-2	27-Jun-00	4	8	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.29 U	0.059 U		0.059 U	0.059 U	0.29 U	0.29 U	0.059 U	0.059 U		0.059 U	0.059 U
AB-2	27-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 U	0.06 U	0.06 U		0.06 U	0.06 U
AB-2	27-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 U	0.062 U	0.062 U		0.062 U	0.062 U
AB-3	28-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 U	0.062 U	0.062 U		0.062 U	0.062 U
AB-3	28-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 U	0.06 U	0.06 U		0.06 U	0.06 U
AB-3	28-Jun-00	24	28	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.29 U	0.29 U	0.058 U		0.058 U	0.058 U	0.29 U	0.29 U	0.058 U	0.058 U		0.058 U	0.058 U
AB-4	28-Jun-00	4	8	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.33 U	0.066 U		0.066 U	0.066 U	0.33 U	0.33 U	0.066 U	0.066 U		0.066 U	0.066 U
AB-4	28-Jun-00	12	16	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.34 U	0.34 U	0.068 U		0.068 U	0.068 U	0.34 U	0.34 U	0.068 U	0.068 U		0.068 U	0.068 U
AB-4	28-Jun-00	20	24	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 U	0.06 U	0.06 U		0.06 U	0.06 U
AB-4	28-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 U	0.062 U	0.062 U		0.062 U	0.062 U
AB-4	28-Jun-00	44	48	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 U	0.062 U	0.062 U		0.062 U	0.062 U
AB-5	29-Jun-00	12	16	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.3 U	0.3 U	0.061 U		0.061 U	0.061 U	0.3 U	0.3 U	0.061 U	0.061 U		0.061 U	0.061 U
AB-5	29-Jun-00	28	32	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 U	0.06 U	0.06 U		0.06 U	0.06 U
AB-5	29-Jun-00	44	48	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.29 U	0.059 U		0.059 U	0.059 U	0.29 U	0.29 U	0.059 U	0.059 U		0.059 U	0.059 U
AB-6	29-Jun-00	12	16	mg/kg	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.28 U	0.28 U	0.056 U		0.056 U	0.056 U	0.28 U	0.28 U	0.056 U	0.056 U		0.056 U	0.056 U
AB-6	29-Jun-00	24	28	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.3 U	0.3 U	0.061 U		0.061 U	0.061 U	0.3 U	0.3 U	0.061 U	0.061 U		0.061 U	0.061 U
AB-6	29-Jun-00	44	48	mg/kg	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.36 U	0.36 U	0.072 U		0.072 U	0.072 U	0.36 U	0.36 U	0.072 U	0.072 U		0.072 U	0.072 U
AB-7	1-Jul-00	16	20	mg/kg	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.29 U	0.29 U	0.057 U		0.057 U	0.057 U	0.29 U	0.29 U	0.057 U	0.057 U		0.057 U	0.057 U
AB-7	1-Jul-00	24	28	mg/kg	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.35 U	0.35 U	0.069 U		0.069 U	0.069 U	0.35 U	0.35 U	0.069 U	0.069 U		0.069 U	0.069 U
AB-7	1-Jul-00	40	44	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.29 U	0.059 U		0.059 U	0.059 U	0.29 U	0.29 U	0.059 U	0.059 U		0.059 U	0.059 U
AB-8	29-Jun-00	8	12	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.32 UJ	0.32 U	0.064 U		0.064 U	0.064 U	0.32 U	0.32 UJ	0.064 U	0.064 U		0.064 U	0.064 U
AB-8	1-Jul-00	32	36	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.29 UJ	0.29 U	0.059 U		0.059 U	0.059 U	0.29 U	0.29 UJ	0.059 U	0.059 U		0.059 U	0.059 U
AB-8	1-Jul-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 UJ	0.3 U	0.06 U		0.06 U	0.06 U	0.3 U	0.3 UJ	0.06 U	0.06 U		0.06 U	0.06 U
AB-9	30-Jun-00	12	16	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 UJ	0.33 U	0.066 U		0.066 U	0.066 U	0.33 U	0.33 UJ	0.066 U	0.066 U		0.066 U	0.066 U
AB-9	30-Jun-00	24	28	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 UJ	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 UJ	0.062 U	0.062 U		0.062 U	0.062 U
AB-9	30-Jun-00	40	44	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.32 UJ	0.32 U	0.065 U		0.065 U	0.065 U	0.32 U	0.32 UJ	0.065 U	0.065 U		0.065 U	0.065 U
AB-10	30-Jun-00	20	24	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 UJ	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 UJ	0.062 U	0.062 U		0.062 U	0.062 U
AB-10	30-Jun-00	32	36	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 UJ	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 UJ	0.062 U	0.062 U		0.062 U	0.062 U
AB-10	30-Jun-00	40	44	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.29 U	0.29 U	0.058 U		0.058 U	0.058 U	0.29 U	0.29 U	0.058 U	0.058 U		0.058 U	0.058 U
AB-11	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ
AB-11	24-Aug-00	15	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ
AB-11	24-Aug-00	25	35	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.29 UJ	0.29 UJ	0.059 UJ		0.059 UJ	0.059 UJ	0.29 UJ	0.29 UJ	0.059 UJ	0.059 UJ		0.059 UJ	0.059 UJ
B21	27-Apr-98	4		mg/kg														0.05 U				
B21	27-Apr-98	8		mg/kg														0.05 U				
B22	27-Apr-98	4		mg/kg														0.05 U				
B22	27-Apr-98	8		mg/kg														0.05 U				
B23	27-Apr-98	4		mg/kg														0.05 U				
B24	27-Apr-98	4		mg/kg														0.05 U				
B25	27-Apr-98	4		mg/kg														0.05 U				
B26	27-Apr-98	4		mg/kg														0.05 U				
B27	27-Apr-98	4		mg/kg														0.05 U				
CB-1	14-Apr-04	0.67	1	mg/kg		0.0015 U	0.0015 U	0.0015 U	0.0015 U		0.0076 U	0.0015 U		0.0015 U					0.0015 U	0.0015 U	0.0015 U	0.0076 U
CB-2	14-Apr-04	0.67	1	mg/kg		0.0014 U	0.0014 U	0.0014 U	0.0014 U		0.007 U	0.0014 U		0.0014 U					0.0014 U	0.0014 U	0.0014 U	0.007 U
CC-3	2-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-2	2-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0063 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-1	2-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0064 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-4	2-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0065 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
CC-5	4-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-6	4-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0064 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-7	4-Sep-03	1	1	mg/kg		0.0012 U	0.0012 U	0.0012 U	0.0012 U		0.0062 U	0.0012 U		0.0012 U					0.0012 U	0.0012 U	0.0012 U	0.0012 U
CC-9	4-Sep-03	1	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0065 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
CC-8	4-Sep-03	0	0	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0013 U
DB-1	14-Apr-04	0.67	1	mg/kg		0.0013 U	0.0013 U	0.0013 U	0.0013 U		0.0067 U	0.0013 U		0.0013 U					0.0013 U	0.0013 U	0.0013 U	0.0067 U
EX-01	28-Sep-99	4	0	mg/kg																		
EX-01	28-Sep-99	9	0	mg/kg																		
EX-02	28-Sep-99	4	0	mg/kg																		
EX-03	28-Sep-99	9	0	mg/kg																		
EX-04	22-Sep-99	4	0	mg/kg																		
EX-05	22-Sep-99	9	0	mg/kg																		
EX-06	22-Sep-99	4	0	mg/kg																		
EX-07	16-Sep-99	9	0	mg/kg																		
EX-08	16-Sep-99	9	0	mg/kg																		
EX-09	16-Sep-99	12	0	mg/kg																		
EX-10	15-Sep-99	4	0	mg/kg																		
EX-11	15-Sep-99	9	0	mg/kg																		
EX-12	15-Sep-99	4	0	mg/kg																		
EX-13	22-Sep-99	4	0	mg/kg																		
EX-13	22-Sep-99	9	0	mg/kg																		
EX-14	22-Sep-99	4	0	mg/kg																		
EX-14	22-Sep-99	9	0	mg/kg																		
EX-15	22-Sep-99	4	0	mg/kg																		
EX-15	22-Sep-99	9	0	mg/kg																		
EX-16	28-Sep-99	4	0	mg/kg																		
EX-16	28-Sep-99	9	0	mg/kg																		
EX-17	28-Sep-99	4	0	mg/kg																		
EX-17	28-Sep-99	9	0	mg/kg																		
EX-18	28-Sep-99	10	0	mg/kg																		
EX-19	28-Sep-99	10	0	mg/kg																		
EX-20	29-Sep-99	20	0	mg/kg																		
EX-21	15-Sep-99	4	0	mg/kg																		
EX-22	22-Sep-99	10	0	mg/kg																		
EX	15-Sep-99	9	0	mg/kg																		
EX	15-Sep-99	9	0	mg/kg																		
EX	15-Sep-99	10	0	mg/kg																		
EX	22-Sep-99	10	0	mg/kg																		
EX	22-Sep-99	10	0	mg/kg																		
EX	24-Sep-99	12	0	mg/kg																		
EX	24-Sep-99	14	0	mg/kg																		
EX	24-Sep-99	16	0	mg/kg																		
EX	28-Sep-99	18	0	mg/kg																		
Excavation	29-Sep-99	0	0	mg/kg																		
GP-2	20-Jun-00	8	12	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 UJ	0.06 U	0.06 U		0.06 U	0.06 U
GP-2	20-Jun-00	16	20	mg/kg	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.54 U	0.11 U	0.11 U	0.11 U	0.54 U	0.54 UJ	0.11 U	0.11 U		0.11 U	0.11 U
GP-2	20-Jun-00	24	28	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.066 U	0.066 U	0.33 U	0.33 UJ	0.066 U	0.066 U		0.066 U	0.066 U
GP-3	21-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 UJ	0.062 U	0.062 U		0.062 U	0.062 U
GP-3	21-Jun-00	16	20	mg/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.52 U	0.1 U	0.1 U	0.1 U	0.52 U	0.52 UJ	0.1 U	0.1 U		0.1 U	0.1 U
GP-3	21-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 UJ	0.062 U	0.062 U		0.062 U	0.062 U
GP-4	21-Jun-00	12	16	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.32 U	0.065 U	0.065 U	0.065 U	0.32 U	0.32 UJ	0.065 U	0.065 U		0.065 U	0.065 U
GP-4	21-Jun-00	30	32	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.32 U	0.064 U	0.064 U	0.064 U	0.32 U	0.32 UJ	0.064 U	0.064 U		0.064 U	0.064 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
GP-A3	26-Jun-00	44	48	mg/kg	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.33 U	0.33 U	0.067 U		0.067 U	0.067 U	0.33 U	0.33 UJ	0.067 U	0.067 U		0.067 U	0.067 U
GP-A4	26-Jun-00	48	52	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.33 U	0.066 U		0.066 U	0.066 U	0.33 U	0.33 U	0.066 U	0.066 U		0.066 U	0.066 U
GP-102	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.009		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.081 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-104	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.058 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-106	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.024		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.15 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-108	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.041 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-110	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.077 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-112	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.019		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.096 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-114	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.016		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.079 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-116	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.02		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.1 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-118	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.1 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-120	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.11 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-122	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.051		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.23 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-124	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-126	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.02 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-128	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.001 J	0.019 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-130	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.027		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.11 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-132	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.011 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-134	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.077 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-136	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.01		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.044 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-135	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.012 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-133	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.044 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-131	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.095 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-129	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-127	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-125	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-123	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-121	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-119	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.016 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-117	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.009		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.059 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-115	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-113	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.04 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-111	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.077 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-109	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.011 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-107	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.011 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-105	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.024 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-103	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-138	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-140	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-142	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-144	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 UJ	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-146	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.019		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.094	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-148	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.027		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-147	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.034		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.15	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-145	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.019		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.086	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-142	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.021		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.14	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-141	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.021	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-139	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-137	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-154	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-155	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-175	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
GP-174	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-170	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-176	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-177	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-178	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-179	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-180	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-181	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-182	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-183	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-184	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-185	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-186	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-187	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-188	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-189	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-190	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-173	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-171	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-169	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-168	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.066	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-167	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-166	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-165	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-164	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-163	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-162	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-161	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.063	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-160	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-159	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-158	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-157	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-191	8-Nov-01			mg/kg	0.002	0.048 U	0.001 U	0.048 U	0.001 U	0.073	0.048 U	0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.65 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-172	8-Nov-01			mg/kg	0.001 U	0.094 U	0.001 U	0.094 U	0.001 U	0.007	0.094 U	0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.051	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-153	8-Nov-01			mg/kg	0.001 U	0.042 U	0.001 U	0.042 U	0.001 U	0.024	0.042 U	0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.13	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-152	8-Nov-01			mg/kg	0.001 U	0.044 U	0.001 U	0.044 U	0.001 U	0.037	0.044 U	0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.17	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-151	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.007 U	0.001 U	0.001 U	0.007 U	0.056	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-150	8-Nov-01			mg/kg	0.001 UJ	0.001 UJ	0.001 U	0.001 UJ	0.001 U	0.18		0.001 UJ	0.007 U	0.001 UJ	0.001 UJ	0.007 U	0.71	0.001 U	0.001 UJ	0.001 U	0.001 U	0.001 U
GP-149	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.11	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
GP-156	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.006 U	0.001 U	0.001 U	0.006 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
MW-1	18-Feb-97	15	0	mg/kg						0.081			0.005 J			0.022	0.24	0.004 U			0.004 U	0.004 U
MW-1	18-Feb-97	35	0	mg/kg						0.14			0.006			0.033	0.61 B	0.001 J			0.004 U	0.004 U
MW-1	18-Feb-97	40	0	mg/kg						0.1			0.007			0.022	0.51 B	0.001 J			0.004 U	0.004 U
MW-1	18-Feb-97	45	0	mg/kg						0.053			0.004 J			0.013	0.19	0.001 J			0.003 U	0.003 U
MW-2	20-Feb-97	15	0	mg/kg						0.091			0.007			0.025	0.24	0.004 J			0.004 U	0.004 U
MW-2	20-Feb-97	30	0	mg/kg						0.099			0.005 J			0.022	0.73 U	0.004 U			0.004 U	0.004 U
MW-2	20-Feb-97	40	0	mg/kg						0.13			0.006			0.027	0.081 U	0.004 U			0.004 U	0.004 U
MW-2	20-Feb-97	45	0	mg/kg						0.088			0.005 J			0.02	0.49 B	0.004 U			0.004 U	0.004 U
MW-3	18-Feb-97	20		mg/kg						0.022			0.006 U			0.009	0.074 B	0.003 U			0.003 U	0.003 U
MW-3	18-Feb-97	30		mg/kg						0.009			0.002 J			0.009	0.031 B	0.004 U			0.004 U	0.004 U
MW-3	18-Feb-97	35		mg/kg						0.008			0.001 J			0.003 J	0.037 B	0.004 U			0.004 U	0.004 U
MW-3	18-Feb-97	46		mg/kg						0.012			0.006 U			0.01	0.04 B	0.004 U			0.004 U	0.004 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
MW-4	18-Feb-97	10		mg/kg						0.015			0.006 U			0.005 J	0.065 B	0.004 U			0.004 U	0.004 U
MW-4	18-Feb-97	30		mg/kg						0.002 J			0.006 U			0.002 J	0.011 B	0.004 U			0.004 U	0.004 U
MW-4	18-Feb-97	35		mg/kg						0.017			0.006 U			0.006 J	0.049 B	0.001 J			0.004 U	0.004 U
MW-4	18-Feb-97	40		mg/kg						0.041			0.007			0.029	0.069 B	0.004 U			0.004 U	0.004 U
MW-5	28-Apr-97	25		mg/kg						0.004 J			0.006 U			0.001 J	0.028	0.004 U			0.004 U	0.004 U
MW-5	28-Apr-97	35		mg/kg						0.015			0.006 U			0.004 J	0.091	0.004 U			0.004 U	0.004 U
MW-5	28-Apr-97	40		mg/kg						0.003 J			0.006 U			0.001 J	0.006 U	0.003 U			0.003 U	0.003 U
MW-5	28-Apr-97	45		mg/kg						0.003 J			0.006 U			0.006 U	0.024	0.003 U			0.003 U	0.003 U
MW-6	30-Apr-97	25	0	mg/kg									0.006 U			0.002 J	0.044	0.004 U			0.004 U	0.004 U
MW-6	30-Apr-97	30	0	mg/kg						0.009			0.006 U			0.003 J	0.058	0.004 U			0.004 U	0.004 U
MW-6	30-Apr-97	35	0	mg/kg						0.006 U			0.006 U			0.001 J	0.016	0.004 U			0.004 U	0.004 U
MW-6	30-Apr-97	45	0	mg/kg						0.006 U			0.006 U			0.001 J	0.006 U	0.003 U			0.003 U	0.003 U
MW-7	2-May-97	30	0	mg/kg						0.006 U			0.006 U			0.002 J	0.029	0.003 U			0.003 U	0.003 U
MW-7	2-May-97	35	0	mg/kg						0.005 J			0.006 U			0.002 J	0.03	0.004 U			0.004 U	0.004 U
MW-7	2-May-97	40	0	mg/kg						0.009			0.006 U			0.003 J	0.006 U	0.003 U			0.003 U	0.003 U
MW-8	6-May-97	0	0	mg/kg						0.02			0.006 U			0.005 J	0.13	0.004 U			0.004 U	0.004 U
MW-8	6-May-97	5	0	mg/kg						0.004 J			0.007 U			0.001 J	0.033	0.004 U			0.004 U	0.004 U
MW-8	6-May-97	35	0	mg/kg						0.009 U			0.014			0.009 U	0.009 U	0.006 U			0.006 U	0.006 U
MW-8	6-May-97	40	0	mg/kg						0.014			0.001 J			0.003 J	0.1	0.003 U			0.003 U	0.003 U
MW-9	25-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ
MW-9	25-Aug-00	15	25	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.31 U	0.062 U		0.062 U	0.062 U	0.31 U	0.31 U	0.062 U	0.062 U		0.062 U	0.062 U
MW-9	25-Aug-00	25	30	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.34 UJ	0.34 UJ	0.068 UJ		0.068 UJ	0.068 UJ	0.34 UJ	0.34 UJ	0.068 UJ	0.068 UJ		0.068 UJ	0.068 UJ
MW-9	25-Aug-00	30	35	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.32 UJ	0.32 UJ	0.064 UJ		0.064 UJ	0.064 UJ	0.32 UJ	0.32 UJ	0.064 UJ	0.064 UJ		0.064 UJ	0.064 UJ
MW-9	25-Aug-00	35	40	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ
MW-9	25-Aug-00	40	45	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ
MW-9	25-Aug-00	45	50	mg/kg	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.33 UJ	0.33 UJ	0.067 UJ		0.067 UJ	0.067 UJ	0.33 UJ	0.33 UJ	0.067 UJ	0.067 UJ		0.067 UJ	0.067 UJ
MW-10	26-Aug-00	0	10	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ
MW-10	26-Aug-00	10	15	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ
MW-10	26-Aug-00	15	20	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ
MW-10	26-Aug-00	20	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ
MW-10	26-Aug-00	25	30	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.28 UJ	0.28 UJ	0.057 UJ		0.057 UJ	0.057 UJ	0.28 UJ	0.28 UJ	0.057 UJ	0.057 UJ		0.057 UJ	0.057 UJ
MW-10	26-Aug-00	30	35	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.28 UJ	0.28 UJ	0.057 UJ		0.057 UJ	0.057 UJ	0.28 UJ	0.28 UJ	0.057 UJ	0.057 UJ		0.057 UJ	0.057 UJ
MW-10	26-Aug-00	35	40	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ
MW-10	26-Aug-00	40	45	mg/kg	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.35 UJ	0.35 UJ	0.069 UJ		0.069 UJ	0.069 UJ	0.35 UJ	0.35 UJ	0.069 UJ	0.069 UJ		0.069 UJ	0.069 UJ
MW-18	18-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
MW-18	18-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-18	18-Jul-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-21	22-Jul-02	5	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0061 U	0.0061 U	0.0012 U	0.0061 U	0.0012 U	0.0012 U	0.0061 U	0.0061 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-21	22-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.0061 B	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
MW-21	22-Jul-02	43	0	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0068 U	0.0014 U	0.0068 U	0.0014 U	0.0014 U	0.0068 U	0.0068 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U
MW-19	25-Jul-02	5	0	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0068 U	0.0014 U	0.0068 U	0.0014 U	0.0014 U	0.0068 U	0.027 B	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U
MW-19	25-Jul-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0064 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0064 U	0.016 B	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
MW-19	25-Jul-02	43	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0065 U	0.009 B	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
MW-11 SB05	29-Jan-01	5	6.5	mg/kg	66 U	66 U	66 U	66 U	66 U	66 U	330 U	66 U		66 U	66 U	330 U	330 U	66 U	66 U		66 U	66 U
MW-11 SB15	29-Jan-01	15	16.5	mg/kg	64 U	64 U	64 U	64 U	64 U	320 U	320 U	64 U		64 U	64 U	320 U	320 U	64 U	64 U		64 U	64 U
MW-11 SB50	29-Jan-01	50	51.5	mg/kg	68 U	68 U	68 U	68 U	68 U	340 U	340 U	68 U		68 U	68 U	340 U	340 U	68 U	68 U		68 U	68 U
MW-12 SB05	30-Jan-01	5	6.5	mg/kg	64 U	64 U	64 U	64 U	64 U	320 U	320 U	64 U		64 U	64 U	320 U	320 U	64 U	64 U		64 U	64 U
MW-12 SB15	30-Jan-01	15	16.5	mg/kg	65 U	65 U	65 U	65 U	65 U	320 U	320 U	65 U		65 U	65 U	320 U	320 U	65 U	65 U		65 U	65 U
MW-12 SB49	30-Jan-01	49	50.5	mg/kg	65 U	65 U	65 U	65 U	65 U	320 U	320 U	65 U		65 U	65 U	320 U	320 U	65 U	65 U		65 U	65 U
MW-13 SB15	30-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-13 SB20	20-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-13 SB49	30-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
MW-14 SB20	31-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-14 SB35	31-Jan-01	35	36.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-14 SB49	31-Jan-01	48.5	50	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-15 SB15	31-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-15 SB25	31-Jan-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-15 SB49	31-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-16 SB15	1-Feb-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-16 SB25	1-Feb-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-16 SB48	1-Feb-01	48	49.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U		0 U	0 U
MW-R8	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ
MW-R8	24-Aug-00	15	25	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.31 UJ	0.31 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ
MW-R8	24-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.3 UJ	0.061 UJ		0.061 UJ	0.061 UJ	0.3 UJ	0.3 UJ	0.061 UJ	0.061 UJ		0.061 UJ	0.061 UJ
MW-R9	25-Aug-00	0	15	mg/kg	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.29 UJ	0.29 UJ	0.058 UJ		0.058 UJ	0.058 UJ	0.29 UJ	0.29 UJ	0.058 UJ	0.058 UJ		0.058 UJ	0.058 UJ
MW-R9	25-Aug-00	15	25	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.3 UJ	0.061 UJ		0.061 UJ	0.061 UJ	0.3 UJ	0.3 UJ	0.061 UJ	0.061 UJ		0.061 UJ	0.061 UJ
MW-R9	25-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.3 UJ	0.061 UJ		0.061 UJ	0.061 UJ	0.3 UJ	0.3 UJ	0.061 UJ	0.061 UJ		0.061 UJ	0.061 UJ
MW-R10	27-Aug-00	0	20	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.29 UJ	0.29 UJ	0.059 UJ		0.059 UJ	0.059 UJ	0.29 UJ	0.29 UJ	0.059 UJ	0.059 UJ		0.059 UJ	0.059 UJ
MW-R10	27-Aug-00	20	25	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ
MW-R10	27-Aug-00	25	35	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.34 UJ	0.34 UJ	0.068 UJ		0.068 UJ	0.068 UJ	0.34 UJ	0.34 UJ	0.068 UJ	0.068 UJ		0.068 UJ	0.068 UJ
MW-R11	27-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.32 UJ	0.32 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ
MW-R11	27-Aug-00	15	25	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.32 UJ	0.32 UJ	0.064 UJ		0.064 UJ	0.064 UJ	0.32 UJ	0.32 UJ	0.064 UJ	0.064 UJ		0.064 UJ	0.064 UJ
MW-R11	27-Aug-00	25	35	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.3 UJ	0.3 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ
RS-1	9-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	0.0063 U	0.0013 U	0.0063 U	0.0013 U	0.0013 U	0.0063 U	0.0063 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-1	9-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0062 U	0.0012 U	0.0062 U	0.0012 U	0.0012 U	0.0062 U	0.018 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-1	9-Jul-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-2	10-Jul-02	5	0	mg/kg	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.032 U	0.032 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.032 U	0.16 B	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U
RS-2	10-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.022 B	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-2	10-Jul-02	45	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-5	11-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0065 U	0.037	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-5	11-Jun-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0062 U	0.0012 U	0.0062 U	0.0012 U	0.0012 U	0.0062 U	0.026	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-8	10-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0064 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0064 U	0.055	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-8	10-Jun-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0065 U	0.016	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-8A	24-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0064 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0064 U	0.018 UJB	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-8A	24-Jun-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-8A	24-Jun-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0058 U	0.0058 U	0.0012 U	0.0058 U	0.0012 U	0.0012 U	0.0058 U	UJB	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-9	11-Jul-02	31	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0062 U	0.0012 U	0.0062 U	0.0012 U	0.0012 U	0.0062 U	0.0062 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-9	11-Jul-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	0.0063 U	0.0013 U	0.0063 U	0.0013 U	0.0013 U	0.0063 U	0.021 B	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-9	11-Jul-02	49	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.006 U	0.0012 U	0.0012 U	0.006 U	0.006 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-12	12-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0065 U	0.0013 U	0.0013 U	0.0065 U	0.0065 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-12	12-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0059 U	0.0059 U	0.0012 U	0.0059 U	0.0012 U	0.0012 U	0.0059 U	0.0059 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U
RS-12	12-Jul-02	40	0	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0057 U	0.0057 U	0.0011 U	0.0057 U	0.0011 U	0.0011 U	0.0057 U	0.0057 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
RS-16	1-Jul-02	43	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0064 U	0.0013 U	0.0064 U	0.0013 U	0.0013 U	0.0064 U	0.0064 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U
RS-31	3-Sep-03	14	15.5	mg/kg		0.016 U	0.016 U	0.016 U	0.016 U		0.082 U	0.016 U		0.016 U					0.016 U	0.016 U	0.016 U	0.016 U
RS-31	3-Sep-03	17	18.5	mg/kg		0.013 U	0.013 U	0.013 U	0.013 U		0.066 U	0.013 U		0.013 U					0.013 U	0.013 U	0.013 U	0.013 U
RS-30	4-Sep-03	18.5	20	mg/kg		0.0011 U	0.0011 U	0.0011 U	0.0011 U		0.0057 U	0.0011 U		0.0011 U					0.0011 U	0.0011 U	0.0011 U	0.0011 U
SP-1	12-Aug-99	2.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-1	12-Aug-99	5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-1	12-Aug-99	7.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-2	12-Aug-99	4	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-2	12-Aug-99	9.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-3	12-Aug-99	3.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-3	12-Aug-99	7.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-4	18-Aug-99	12	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform
SP-4	18-Aug-99	6.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-5	18-Aug-99	11.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-5	18-Aug-99	6	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-6	18-Aug-99	11.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-6	18-Aug-99	7.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-7	18-Aug-99	11	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-7	18-Aug-99	6	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-8	18-Aug-99	11	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
SP-8	18-Aug-99	6	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-5	19-Aug-99	1.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-5	19-Aug-99	6	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-5	19-Aug-99	9	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-6	19-Aug-99	1.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-6	19-Aug-99	8	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-7	19-Aug-99	3	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U
TP-7	19-Aug-99	8.5	0	mg/kg		0.05 U		0.05 U													0.05 U	0.05 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
AB-1	26-Jun-00	0	4	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 U		0.06 U	0.06 U
AB-1	26-Jun-00	4	8	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 U		0.3 UJ		0.06 U	0.06 U
AB-1	26-Jun-00	20	24	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 UJ	0.066 U	0.066 U		0.33 UJ		0.066 U	0.066 U
AB-1	26-Jun-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.4		0.06 U	0.06 U
AB-1	26-Jun-00	44	48	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U		0.44		0.068 U	0.068 U
AB-2	27-Jun-00	4	8	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U		0.29 U		0.059 U	0.059 U
AB-2	27-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 U		0.06 U	0.06 U
AB-2	27-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 U		0.062 U	0.062 U
AB-3	28-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 U		0.062 U	0.062 U
AB-3	28-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 U		0.06 U	0.06 U
AB-3	28-Jun-00	24	28	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U		0.29 U		0.058 U	0.058 U
AB-4	28-Jun-00	4	8	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U		0.33 U		0.066 U	0.066 U
AB-4	28-Jun-00	12	16	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U	0.068 U		0.34 U		0.068 U	0.068 U
AB-4	28-Jun-00	20	24	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 U		0.06 U	0.06 U
AB-4	28-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 U		0.062 U	0.062 U
AB-4	28-Jun-00	44	48	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 U		0.062 U	0.062 U
AB-5	29-Jun-00	12	16	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U		0.3 U		0.061 U	0.061 U
AB-5	29-Jun-00	28	32	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 U		0.06 U	0.06 U
AB-5	29-Jun-00	44	48	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U		0.29 U		0.059 U	0.059 U
AB-6	29-Jun-00	12	16	mg/kg	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U		0.28 U		0.056 U	0.056 U
AB-6	29-Jun-00	24	28	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U	0.061 U		0.3 U		0.061 U	0.061 U
AB-6	29-Jun-00	44	48	mg/kg	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U	0.072 U		0.36 U		0.072 U	0.072 U
AB-7	1-Jul-00	16	20	mg/kg	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U		0.29 U		0.057 U	0.057 U
AB-7	1-Jul-00	24	28	mg/kg	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U	0.069 U		0.35 U		0.069 U	0.069 U
AB-7	1-Jul-00	40	44	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U		0.29 U		0.059 U	0.059 U
AB-8	29-Jun-00	8	12	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U		0.32 UJ		0.064 U	0.064 U
AB-8	1-Jul-00	32	36	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U		0.29 UJ		0.059 U	0.059 U
AB-8	1-Jul-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 UJ		0.06 U	0.06 U
AB-9	30-Jun-00	12	16	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U		0.33 UJ		0.066 U	0.066 U
AB-9	30-Jun-00	24	28	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 UJ		0.062 U	0.062 U
AB-9	30-Jun-00	40	44	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U		0.32 UJ		0.065 U	0.065 U
AB-10	30-Jun-00	20	24	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 UJ		0.062 U	0.062 U
AB-10	30-Jun-00	32	36	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 UJ		0.062 U	0.062 U
AB-10	30-Jun-00	40	44	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U		0.29 U		0.058 U	0.058 U
AB-11	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.31 UJ		0.062 UJ	0.062 UJ
AB-11	24-Aug-00	15	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.3 UJ		0.06 UJ	0.06 UJ
AB-11	24-Aug-00	25	35	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ		0.29 UJ		0.059 UJ	0.059 UJ
B21	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B21	27-Apr-98	8		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B22	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B22	27-Apr-98	8		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B23	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B24	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B25	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B26	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
B27	27-Apr-98	4		mg/kg			0.05 U			0.05 U						0.05 U			0.05 U			
CB-1	14-Apr-04	0.67	1	mg/kg	0.0015 U		0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U	0.0015 U				0.0076 U			
CB-2	14-Apr-04	0.67	1	mg/kg	0.0014 U		0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U				0.007 U			
CC-3	2-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0067 U			
CC-2	2-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0063 U			
CC-1	2-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0064 U			
CC-4	2-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0065 U			

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
CC-5	4-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0067 U			
CC-6	4-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0064 U			
CC-7	4-Sep-03	1	1	mg/kg	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U				0.0062 U			
CC-9	4-Sep-03	1	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0065 U			
CC-8	4-Sep-03	0	0	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0067 U			
DB-1	14-Apr-04	0.67	1	mg/kg	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U				0.0067 U			
EX-01	28-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-01	28-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-02	28-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-03	28-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-04	22-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-05	22-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-06	22-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-07	16-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-08	16-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-09	16-Sep-99	12	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-10	15-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-11	15-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-12	15-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-13	22-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-13	22-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-14	22-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-14	22-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-15	22-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-15	22-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-16	28-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-16	28-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-17	28-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-17	28-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-18	28-Sep-99	10	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-19	28-Sep-99	10	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-20	29-Sep-99	20	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-21	15-Sep-99	4	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX-22	22-Sep-99	10	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	15-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	15-Sep-99	9	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	15-Sep-99	10	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	22-Sep-99	10	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	22-Sep-99	10	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	24-Sep-99	12	0	mg/kg			0.05 U			0.05 U	0.05 U					1						
EX	24-Sep-99	14	0	mg/kg			0.05 U			0.96	0.05 U					0.05 U						
EX	24-Sep-99	16	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
EX	28-Sep-99	18	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
Excavation	29-Sep-99	0	0	mg/kg			0.05 U			0.05 U	0.05 U					0.05 U						
GP-2	20-Jun-00	8	12	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U		0.3 UJ		0.06 U	0.06 U
GP-2	20-Jun-00	16	20	mg/kg	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U		0.54 UJ		0.11 U	0.11 U
GP-2	20-Jun-00	24	28	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U		0.33 UJ		0.066 U	0.066 U
GP-3	21-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 UJ		0.062 U	0.062 U
GP-3	21-Jun-00	16	20	mg/kg	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		0.52 UJ		0.1 U	0.1 U
GP-3	21-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 UJ		0.062 U	0.062 U
GP-4	21-Jun-00	12	16	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U	0.065 U		0.32 UJ		0.065 U	0.065 U
GP-4	21-Jun-00	30	32	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U	0.064 U		0.32 UJ		0.064 U	0.064 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
GP-A3	26-Jun-00	44	48	mg/kg	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 U	0.067 UJ	0.067 U	0.067 U		0.33 UJ		0.067 U	0.067 U
GP-A4	26-Jun-00	48	52	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U	0.066 U		0.55		0.066 U	0.066 U
GP-102	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013 J		0.001 U	0.001 U
GP-104	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-106	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013 J		0.001 U	0.001 U
GP-108	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.001 U
GP-110	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-112	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013 J		0.001 U	0.001 U
GP-114	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-116	30-Oct-01	0	8	mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.018 J		0.001 U	0.001 U
GP-118	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.018 J		0.001 U	0.001 U
GP-120	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.018 J		0.001 U	0.001 U
GP-122	31-Oct-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.022 J		0.001 U	0.001 U
GP-124	31-Oct-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014 J		0.001 U	0.001 U
GP-126	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013 J		0.001 U	0.001 U
GP-128	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-130	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 UJ		0.001 U	0.001 U
GP-132	31-Oct-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014 J		0.001 U	0.001 U
GP-134	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.018 J		0.001 U	0.001 U
GP-136	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.017 J		0.001 U	0.001 U
GP-135	31-Oct-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014 J		0.001 U	0.001 U
GP-133	1-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015 J		0.001 U	0.001 U
GP-131	1-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 UJ		0.001 U	0.001 U
GP-129	1-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 UJ		0.001 U	0.001 U
GP-127	1-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.027 J		0.001 U	0.001 U
GP-125	1-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012 J		0.001 U	0.001 U
GP-123	1-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.024 J		0.001 U	0.001 U
GP-121	1-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.016 J		0.001 U	0.001 U
GP-119	1-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.024 J		0.001 U	0.001 U
GP-117	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.017 J		0.001 U	0.001 U
GP-115	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.019 J		0.001 U	0.001 U
GP-113	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.022 J		0.001 U	0.001 U
GP-111	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.021 J		0.001 U	0.001 U
GP-109	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.017 J		0.001 U	0.001 U
GP-107	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.009 J		0.001 U	0.001 U
GP-105	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.024 J		0.001 U	0.001 U
GP-103	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012 J		0.001 U	0.001 U
GP-138	2-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-140	2-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.012 J		0.001 U	0.001 U
GP-142	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-144	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.009 J		0.001 U	0.001 U
GP-146	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-148	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014 J		0.001 U	0.001 U
GP-147	5-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.018 J		0.001 U	0.001 U
GP-145	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-142	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-141	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 J		0.001 U	0.001 U
GP-139	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-137	5-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-154	5-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-155	5-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 UJ		0.001 U	0.001 U
GP-175	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
GP-174	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-170	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015 J		0.001 U	0.001 U
GP-176	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 J		0.001 U	0.001 U
GP-177	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.017 J		0.001 U	0.001 U
GP-178	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-179	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.009 J		0.001 U	0.001 U
GP-180	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-181	6-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.019 J		0.001 U	0.001 U
GP-182	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.001 U
GP-183	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-184	6-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014 J		0.001 U	0.001 U
GP-185	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.02 J		0.001 U	0.001 U
GP-186	6-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.017 J		0.001 U	0.001 U
GP-187	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-188	6-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015 J		0.001 U	0.001 U
GP-189	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.018 J		0.001 U	0.001 U
GP-190	6-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 U		0.001 U	0.001 U
GP-173	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-171	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-169	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-168	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.05 J		0.001 U	0.001 U
GP-167	7-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.02 J		0.001 U	0.001 U
GP-166	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.015 J		0.001 U	0.001 U
GP-165	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-164	7-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.017 J		0.001 U	0.001 U
GP-163	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 J		0.001 U	0.001 U
GP-162	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 UJ		0.001 U	0.001 U
GP-161	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.007 J		0.001 U	0.001 U
GP-160	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.01		0.001 U	0.001 U
GP-159	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.013 J		0.001 U	0.001 U
GP-158	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-157	7-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.009 J		0.001 U	0.001 U
GP-191	8-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.034 J		0.001 U	0.001 U
GP-172	8-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.046 J		0.001 U	0.001 U
GP-153	8-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.036 J		0.001 U	0.001 U
GP-152	8-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.014 J		0.001 U	0.001 U
GP-151	8-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.008 J		0.001 U	0.001 U
GP-150	8-Nov-01			mg/kg	0.001 U	0.007 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.037 J		0.001 UJ	0.001 UJ
GP-149	8-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.011 J		0.001 U	0.001 U
GP-156	8-Nov-01			mg/kg	0.001 U	0.006 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.006 U		0.001 U	0.001 U
MW-1	18-Feb-97	15	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J			0.005 B			
MW-1	18-Feb-97	35	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.002 J			0.007 B			
MW-1	18-Feb-97	40	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J			0.006 B			
MW-1	18-Feb-97	45	0	mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.002 J			0.006 B			
MW-2	20-Feb-97	15	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J			0.007 B			
MW-2	20-Feb-97	30	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J			0.005 B			
MW-2	20-Feb-97	40	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J			0.007 B			
MW-2	20-Feb-97	45	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J			0.008 B			
MW-3	18-Feb-97	20		mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U			0.009 B	0.001 J		
MW-3	18-Feb-97	30		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.009 B	0.001 J		
MW-3	18-Feb-97	35		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.006 B	0.004 U		
MW-3	18-Feb-97	46		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.011 B	0.004 U		

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
MW-4	18-Feb-97	10		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.01 B	0.002 J		
MW-4	18-Feb-97	30		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.007 B	0.004 U		
MW-4	18-Feb-97	35		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 J	0.004 U	0.004 U		0.004 U	0.004 U			0.008 B	0.001 J		
MW-4	18-Feb-97	40		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.001 J	0.004 U	0.004 U		0.004 U	0.004 U			0.008 B	0.001 J		
MW-5	28-Apr-97	25		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.005	0.004 U		
MW-5	28-Apr-97	35		mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.01	0.001 J		
MW-5	28-Apr-97	40		mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U			0.005	0.003 U		
MW-5	28-Apr-97	45		mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U			0.005	0.003 U		
MW-6	30-Apr-97	25	0	mg/kg	0.004 U	0.006	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.004 U			
MW-6	30-Apr-97	30	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.007			
MW-6	30-Apr-97	35	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.006			
MW-6	30-Apr-97	45	0	mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U			0.005			
MW-7	2-May-97	30	0	mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U			0.007			
MW-7	2-May-97	35	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.005			
MW-7	2-May-97	40	0	mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U			0.007			
MW-8	6-May-97	0	0	mg/kg	0.004 U	0.023	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.002 J			0.008			
MW-8	6-May-97	5	0	mg/kg	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U			0.01			
MW-8	6-May-97	35	0	mg/kg	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U		0.006 U	0.006 U			0.015			
MW-8	6-May-97	40	0	mg/kg	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U	0.003 U		0.003 U	0.001 J			0.008			
MW-9	25-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.32 UJ		0.063 UJ	0.063 UJ
MW-9	25-Aug-00	15	25	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U	0.062 U		0.31 U		0.062 U	0.062 U
MW-9	25-Aug-00	25	30	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ		0.34 UJ		0.068 UJ	0.068 UJ
MW-9	25-Aug-00	30	35	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ		0.32 UJ		0.064 UJ	0.064 UJ
MW-9	25-Aug-00	35	40	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.31 UJ		0.062 UJ	0.062 UJ
MW-9	25-Aug-00	40	45	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.32 UJ		0.063 UJ	0.063 UJ
MW-9	25-Aug-00	45	50	mg/kg	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ		0.33 UJ		0.067 UJ	0.067 UJ
MW-10	26-Aug-00	0	10	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.31 UJ		0.062 UJ	0.062 UJ
MW-10	26-Aug-00	10	15	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.3 UJ		0.06 UJ	0.06 UJ
MW-10	26-Aug-00	15	20	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.32 UJ		0.063 UJ	0.063 UJ
MW-10	26-Aug-00	20	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.3 UJ		0.06 UJ	0.06 UJ
MW-10	26-Aug-00	25	30	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ		0.28 UJ		0.057 UJ	0.057 UJ
MW-10	26-Aug-00	30	35	mg/kg	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ		0.28 UJ		0.057 UJ	0.057 UJ
MW-10	26-Aug-00	35	40	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.32 UJ		0.063 UJ	0.063 UJ
MW-10	26-Aug-00	40	45	mg/kg	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ		0.35 UJ		0.069 UJ	0.069 UJ
MW-18	18-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	U	0.0013 U	0.0013 U
MW-18	18-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
MW-18	18-Jul-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
MW-21	22-Jul-02	5	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0061 U	U	0.0012 U	0.0012 U
MW-21	22-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
MW-21	22-Jul-02	43	0	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	U	0.0014 U	0.0014 U
MW-19	25-Jul-02	5	0	mg/kg	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	U	0.0014 U	0.0014 U
MW-19	25-Jul-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	U	0.0013 U	0.0013 U
MW-19	25-Jul-02	43	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0073	U	0.0013 U	0.0013 U
MW-11 SB05	29-Jan-01	5	6.5	mg/kg	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U	66 U		330 U		66 U	66 U
MW-11 SB15	29-Jan-01	15	16.5	mg/kg	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U		320 U		64 U	64 U
MW-11 SB50	29-Jan-01	50	51.5	mg/kg	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U	68 U		340 U		68 U	68 U
MW-12 SB05	30-Jan-01	5	6.5	mg/kg	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U	64 U		320 U		64 U	64 U
MW-12 SB15	30-Jan-01	15	16.5	mg/kg	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U		320 U		65 U	65 U
MW-12 SB49	30-Jan-01	49	50.5	mg/kg	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U	65 U		320 U		65 U	65 U
MW-13 SB15	30-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-13 SB20	20-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-13 SB49	30-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
MW-14 SB20	31-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-14 SB35	31-Jan-01	35	36.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-14 SB49	31-Jan-01	48.5	50	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-15 SB15	31-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-15 SB25	31-Jan-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-15 SB49	31-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-16 SB15	1-Feb-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-16 SB25	1-Feb-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-16 SB48	1-Feb-01	48	49.5	mg/kg	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U	0 U		0 U		0 U	0 U
MW-R8	24-Aug-00	0	15	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.31 UJ		0.062 UJ	0.062 UJ
MW-R8	24-Aug-00	15	25	mg/kg	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.31 UJ		0.062 UJ	0.062 UJ
MW-R8	24-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ		0.3 UJ		0.061 UJ	0.061 UJ
MW-R9	25-Aug-00	0	15	mg/kg	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ		0.29 UJ		0.058 UJ	0.058 UJ
MW-R9	25-Aug-00	15	25	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ		0.3 UJ		0.061 UJ	0.061 UJ
MW-R9	25-Aug-00	25	35	mg/kg	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ		0.3 UJ		0.061 UJ	0.061 UJ
MW-R10	27-Aug-00	0	20	mg/kg	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ		0.29 UJ		0.059 UJ	0.059 UJ
MW-R10	27-Aug-00	20	25	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.32 UJ		0.063 UJ	0.063 UJ
MW-R10	27-Aug-00	25	35	mg/kg	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ		0.34 UJ		0.068 UJ	0.068 UJ
MW-R11	27-Aug-00	0	15	mg/kg	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.32 UJ		0.063 UJ	0.063 UJ
MW-R11	27-Aug-00	15	25	mg/kg	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ		0.32 UJ		0.064 UJ	0.064 UJ
MW-R11	27-Aug-00	25	35	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.3 UJ		0.06 UJ	0.06 UJ
RS-1	9-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	U	0.0013 U	0.0013 U
RS-1	9-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	U	0.0012 U	0.0012 U
RS-1	9-Jul-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
RS-2	10-Jul-02	5	0	mg/kg	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.032 U	0.013 U	0.0063 U	0.0063 U
RS-2	10-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
RS-2	10-Jul-02	45	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
RS-5	11-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	U	0.0013 U	0.0013 U
RS-5	11-Jun-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 UJ	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	U	0.0012 U	0.0012 U
RS-8	10-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	U	0.0013 U	0.0013 U
RS-8	10-Jun-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	U	0.0013 U	0.0013 U
RS-8A	24-Jun-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0064 U	U	0.0013 U	0.0013 U
RS-8A	24-Jun-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 UJ	0.0012 U	0.0012 U	0.0012 U	0.0012 UJ	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
RS-8A	24-Jun-02	44	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 UJ	0.0012 U	0.0012 U	0.0012 U	0.0012 UJ	0.0012 U	0.0012 U	0.0012 U	0.0058 U	U	0.0012 U	0.0012 U
RS-9	11-Jul-02	31	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	U	0.0012 U	0.0012 U
RS-9	11-Jul-02	10	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	U	0.0013 U	0.0013 U
RS-9	11-Jul-02	49	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	U	0.0012 U	0.0012 U
RS-12	12-Jul-02	5	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	U	0.0013 U	0.0013 U
RS-12	12-Jul-02	10	0	mg/kg	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0059 U	U	0.0012 U	0.0012 U
RS-12	12-Jul-02	40	0	mg/kg	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0057 U	U	0.0011 U	0.0011 U
RS-16	1-Jul-02	43	0	mg/kg	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0013 UJ	0.0013 U	0.0013 U	0.0013 U	0.0064 U	U	0.0013 U	0.0013 U
RS-31	3-Sep-03	14	15.5	mg/kg	0.016 U		0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U				0.082 U			
RS-31	3-Sep-03	17	18.5	mg/kg	0.013 U		0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U				0.066 U			
RS-30	4-Sep-03	18.5	20	mg/kg	0.0011 U		0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U				0.0057 U			
SP-1	12-Aug-99	2.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.528			
SP-1	12-Aug-99	5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-1	12-Aug-99	7.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.526			
SP-2	12-Aug-99	4	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-2	12-Aug-99	9.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-3	12-Aug-99	3.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-3	12-Aug-99	7.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-4	18-Aug-99	12	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Bromo-methane	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Di-chloropropene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Ethyl-benzene	Isopropyl-benzene	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Propyl-benzene
SP-4	18-Aug-99	6.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-5	18-Aug-99	11.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-5	18-Aug-99	6	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-6	18-Aug-99	11.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-6	18-Aug-99	7.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-7	18-Aug-99	11	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-7	18-Aug-99	6	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-8	18-Aug-99	11	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
SP-8	18-Aug-99	6	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
TP-5	19-Aug-99	1.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
TP-5	19-Aug-99	6	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
TP-5	19-Aug-99	9	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.5 U			
TP-6	19-Aug-99	1.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.772			
TP-6	19-Aug-99	8	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						0.678			
TP-7	19-Aug-99	3	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						1.06			
TP-7	19-Aug-99	8.5	0	mg/kg	0.05 U		0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U						1.09			

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
AB-1	26-Jun-00	0	4	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-1	26-Jun-00	4	8	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-1	26-Jun-00	20	24	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U		0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.13 U	E+E 2000a
AB-1	26-Jun-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-1	26-Jun-00	44	48	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U		0.068 U	0.068 U	0.068 U	0.068 U	0.34 U	0.068 U	0.14 U	E+E 2000a
AB-2	27-Jun-00	4	8	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U		0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.12 U	E+E 2000a
AB-2	27-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-2	27-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-3	28-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-3	28-Jun-00	12	16	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-3	28-Jun-00	24	28	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U		0.058 U	0.058 U	0.058 U	0.058 U	0.29 U	0.058 U	0.12 U	E+E 2000a
AB-4	28-Jun-00	4	8	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U		0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.13 U	E+E 2000a
AB-4	28-Jun-00	12	16	mg/kg	0.068 U	0.068 U	0.068 U	0.068 U		0.068 U	0.068 U	0.068 U	0.068 U	0.34 U	0.068 U	0.14 U	E+E 2000a
AB-4	28-Jun-00	20	24	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-4	28-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-4	28-Jun-00	44	48	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-5	29-Jun-00	12	16	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U		0.061 U	0.061 U	0.061 U	0.061 U	0.3 U	0.061 U	0.12 U	E+E 2000a
AB-5	29-Jun-00	28	32	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-5	29-Jun-00	44	48	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U		0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.12 U	E+E 2000a
AB-6	29-Jun-00	12	16	mg/kg	0.056 U	0.056 U	0.056 U	0.056 U		0.056 U	0.056 U	0.056 U	0.056 U	0.28 U	0.056 U	0.11 U	E+E 2000a
AB-6	29-Jun-00	24	28	mg/kg	0.061 U	0.061 U	0.061 U	0.061 U		0.061 U	0.061 U	0.061 U	0.061 U	0.3 U	0.061 U	0.12 U	E+E 2000a
AB-6	29-Jun-00	44	48	mg/kg	0.072 U	0.072 U	0.072 U	0.072 U		0.072 U	0.072 U	0.072 U	0.072 U	0.36 U	0.072 U	0.14 U	E+E 2000a
AB-7	1-Jul-00	16	20	mg/kg	0.057 U	0.057 U	0.057 U	0.057 U		0.057 U	0.057 U	0.057 U	0.057 U	0.29 U	0.057 U	0.11 U	E+E 2000a
AB-7	1-Jul-00	24	28	mg/kg	0.069 U	0.069 U	0.069 U	0.069 U		0.069 U	0.069 U	0.069 U	0.069 U	0.35 U	0.069 U	0.14 U	E+E 2000a
AB-7	1-Jul-00	40	44	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U		0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.12 U	E+E 2000a
AB-8	29-Jun-00	8	12	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U		0.064 U	0.064 U	0.064 U	0.064 U	0.32 U	0.064 U	0.13 U	E+E 2000a
AB-8	1-Jul-00	32	36	mg/kg	0.059 U	0.059 U	0.059 U	0.059 U		0.059 U	0.059 U	0.059 U	0.059 U	0.29 U	0.059 U	0.12 U	E+E 2000a
AB-8	1-Jul-00	40	44	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
AB-9	30-Jun-00	12	16	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U		0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.13 U	E+E 2000a
AB-9	30-Jun-00	24	28	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-9	30-Jun-00	40	44	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U		0.065 U	0.065 U	0.065 U	0.065 U	0.32 U	0.065 U	0.13 U	E+E 2000a
AB-10	30-Jun-00	20	24	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-10	30-Jun-00	32	36	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
AB-10	30-Jun-00	40	44	mg/kg	0.058 U	0.058 U	0.058 U	0.058 U		0.058 U	0.058 U	0.058 U	0.058 U	0.29 U	0.058 U	0.12 U	E+E 2000a
AB-11	24-Aug-00	0	15	mg/kg	UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.12 UJ	E+E 2000a
AB-11	24-Aug-00	15	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.12 UJ	E+E 2000a
AB-11	24-Aug-00	25	35	mg/kg	UJ	0.059 UJ	0.059 UJ	0.059 UJ		0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.29 UJ	0.059 UJ	0.12 UJ	E+E 2000a
B21	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B21	27-Apr-98	8		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B22	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B22	27-Apr-98	8		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B23	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B24	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B25	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B26	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
B27	27-Apr-98	4		mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	Ecology 1999a
CB-1	14-Apr-04	0.67	1	mg/kg							0.0015 U	0.0015 U	0.0015 U		0.0015 U		Farallon 2004
CB-2	14-Apr-04	0.67	1	mg/kg							0.0014 U	0.0014 U	0.0014 U		0.0014 U		Farallon 2004
CC-3	2-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
CC-2	2-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
CC-1	2-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
CC-4	2-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
CC-5	4-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
CC-6	4-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
CC-7	4-Sep-03	1	1	mg/kg							0.0012 U	0.0012 U	0.0012 U		0.0012 U		Farallon 2004
CC-9	4-Sep-03	1	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
CC-8	4-Sep-03	0	0	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
DB-1	14-Apr-04	0.67	1	mg/kg							0.0013 U	0.0013 U	0.0013 U		0.0013 U		Farallon 2004
EX-01	28-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-01	28-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-02	28-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-03	28-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-04	22-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-05	22-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-06	22-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-07	16-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.73	GeoEngineers 2001
EX-08	16-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-09	16-Sep-99	12	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-10	15-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-11	15-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-12	15-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-13	22-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-13	22-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-14	22-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-14	22-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-15	22-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-15	22-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-16	28-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-16	28-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-17	28-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-17	28-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-18	28-Sep-99	10	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-19	28-Sep-99	10	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-20	29-Sep-99	20	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-21	15-Sep-99	4	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX-22	22-Sep-99	10	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX	15-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX	15-Sep-99	9	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX	15-Sep-99	10	0	mg/kg						0.5	0.05 U				0.25 U	0.19	GeoEngineers 2001
EX	22-Sep-99	10	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX	22-Sep-99	10	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX	24-Sep-99	12	0	mg/kg						0.05 U	0.05 U				0.25 U	2.73	GeoEngineers 2001
EX	24-Sep-99	14	0	mg/kg						0.82	0.28				2.4	2.3	GeoEngineers 2001
EX	24-Sep-99	16	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
EX	28-Sep-99	18	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
Excavation	29-Sep-99	0	0	mg/kg						0.05 U	0.05 U				0.25 U	0.05 U	GeoEngineers 2001
GP-2	20-Jun-00	8	12	mg/kg	0.06 U	0.06 U	0.06 U	0.06 U		0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.06 U	0.12 U	E+E 2000a
GP-2	20-Jun-00	16	20	mg/kg	0.11 U	0.11 U	0.11 U	0.11 U		0.11 U	0.11 U	0.11 U	0.11 U	0.54 U	0.11 U	0.22 U	E+E 2000a
GP-2	20-Jun-00	24	28	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U		0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.13 U	E+E 2000a
GP-3	21-Jun-00	4	8	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
GP-3	21-Jun-00	16	20	mg/kg	0.1 U	0.1 U	0.1 U	0.1 U		0.1 U	0.1 U	0.1 U	0.1 U	0.52 U	0.1 U	0.21 U	E+E 2000a
GP-3	21-Jun-00	28	32	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
GP-4	21-Jun-00	12	16	mg/kg	0.065 U	0.065 U	0.065 U	0.065 U		0.065 U	0.065 U	0.065 U	0.065 U	0.32 U	0.065 U	0.13 U	E+E 2000a
GP-4	21-Jun-00	30	32	mg/kg	0.064 U	0.064 U	0.064 U	0.064 U		0.064 U	0.064 U	0.064 U	0.064 U	0.32 U	0.064 U	0.13 U	E+E 2000a

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
GP-A3	26-Jun-00	44	48	mg/kg	0.067 U	0.067 U	0.067 U	0.067 U		0.067 U	0.067 U	0.067 U	0.067 U	0.33 U	0.067 U	0.13 U	E+E 2000a
GP-A4	26-Jun-00	48	52	mg/kg	0.066 U	0.066 U	0.066 U	0.066 U		0.066 U	0.066 U	0.066 U	0.066 U	0.33 U	0.066 U	0.13 U	E+E 2000a
GP-102	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-104	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-106	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-108	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.009 J	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-110	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-112	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-114	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-116	30-Oct-01	0	8	mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-118	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-120	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-122	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-124	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-126	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-128	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-130	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-132	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-134	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-136	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-135	31-Oct-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-133	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-131	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-129	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-127	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-125	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-123	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-121	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-119	1-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-117	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-115	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-113	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-111	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-109	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-107	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-105	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-103	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-138	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-140	2-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-142	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-144	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-146	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-148	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-147	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-145	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-142	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-141	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-139	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-137	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-154	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-155	5-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-175	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
GP-174	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-170	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-176	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-177	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-178	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-179	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-180	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-181	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-182	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-183	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-184	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-185	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-186	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-187	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-188	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-189	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-190	6-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-173	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-171	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-169	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-168	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-167	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-166	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-165	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-164	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-163	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-162	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-161	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-160	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-159	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-158	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-157	7-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-191	8-Nov-01			mg/kg	0.002	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-172	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
GP-153	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-152	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-151	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-150	8-Nov-01			mg/kg	0.001 U	0.001 UJ	0.001 U	0.001 UJ		0.001 U	0.001 U	0.001 U	0.001 U	0.007 U	0.001 U	0.003 U	E+E 2002
GP-149	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.002 U	E+E 2002
GP-156	8-Nov-01			mg/kg	0.001 U	0.001 U	0.001 U	0.001 U		0.001 U	0.001 U	0.001 U	0.001 U	0.006 U	0.001 U	0.003 U	E+E 2002
MW-1	18-Feb-97	15	0	mg/kg	0.001 U				0.004 U	0.002 J	0.004 U	0.004 U	0.004 U		0.004 U	0.003 U	SAIC 1997
MW-1	18-Feb-97	35	0	mg/kg	0.002 J				0.004 U	0.003 J	0.004 U	0.004 U	0.004 U		0.004 U	0.006	SAIC 1997
MW-1	18-Feb-97	40	0	mg/kg	0.001 J				0.004 U	0.003 J	0.004 U	0.004 U	0.004 U		0.004 U	0.004	SAIC 1997
MW-1	18-Feb-97	45	0	mg/kg	0.002 J				0.003 U	0.003 J	0.003 U	0.003 U	0.003 U		0.003 U	0.005	SAIC 1997
MW-2	20-Feb-97	15	0	mg/kg	0.001 J				0.004 U	0.002 J	0.004 U	0.004 U	0.004 U		0.004 U	0.002 J	SAIC 1997
MW-2	20-Feb-97	30	0	mg/kg	0.001 J				0.004 U	0.002 J	0.004 U	0.004 U	0.004 U		0.004 U	0.004	SAIC 1997
MW-2	20-Feb-97	40	0	mg/kg	0.001 J				0.004 U	0.002 J	0.004 U	0.004 U	0.004 U		0.004 U	0.004	SAIC 1997
MW-2	20-Feb-97	45	0	mg/kg	0.001 J				0.004 U	0.002 J	0.004 U	0.004 U	0.004 U		0.004 U	0.003 J	SAIC 1997
MW-3	18-Feb-97	20		mg/kg	0.003 U		0.003 U			0.001 J	0.003 U	0.003 U	0.003 U		0.003 U		SAIC 1997
MW-3	18-Feb-97	30		mg/kg	0.004 U		0.004 U			0.001 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-3	18-Feb-97	35		mg/kg	0.004 U		0.004 U			0.004 U	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-3	18-Feb-97	46		mg/kg	0.004 U		0.004 U			0.002 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-4	18-Feb-97	10		mg/kg	0.001 J		0.004 U			0.002 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-4	18-Feb-97	30		mg/kg	0.004 U		0.004 U			0.004 U	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-4	18-Feb-97	35		mg/kg	0.004 U		0.004 U			0.001 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-4	18-Feb-97	40		mg/kg	0.004 U		0.004 U			0.001 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-5	28-Apr-97	25		mg/kg	0.004 U		0.004 U			0.001 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-5	28-Apr-97	35		mg/kg	0.004 U		0.004 U			0.001 J	0.004 U	0.004 U	0.004 U		0.004 U		SAIC 1997
MW-5	28-Apr-97	40		mg/kg	0.003 U		0.003 U			0.003 U	0.003 U	0.003 U	0.003 U		0.003 U		SAIC 1997
MW-5	28-Apr-97	45		mg/kg	0.003 U		0.003 U			0.001 J	0.003 U	0.003 U	0.003 U		0.003 U		SAIC 1997
MW-6	30-Apr-97	25	0	mg/kg	0.004 U					0.001 J	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U	SAIC 1997
MW-6	30-Apr-97	30	0	mg/kg	0.004 U					0.001 J	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U	SAIC 1997
MW-6	30-Apr-97	35	0	mg/kg	0.004 U					0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U	SAIC 1997
MW-6	30-Apr-97	45	0	mg/kg	0.003 U					0.001 J	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U	SAIC 1997
MW-7	2-May-97	30	0	mg/kg	0.003 U					0.001 J	0.003 U	0.003 U	0.003 U		0.003 U	0.003 U	SAIC 1997
MW-7	2-May-97	35	0	mg/kg	0.004 U					0.001 J	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U	SAIC 1997
MW-7	2-May-97	40	0	mg/kg	0.003 U					0.001 J	0.003 U	0.003 U	0.003 U		0.003 U	0.001 J	SAIC 1997
MW-8	6-May-97	0	0	mg/kg	0.004 U					0.004	0.004 U	0.004 U	0.004 U		0.004 U	0.001 J	SAIC 1997
MW-8	6-May-97	5	0	mg/kg	0.004 U					0.004 U	0.004 U	0.004 U	0.004 U		0.004 U	0.004 U	SAIC 1997
MW-8	6-May-97	35	0	mg/kg						0.006 U	0.006 U	0.006 U	0.006 U		0.006 U	0.006 U	SAIC 1997
MW-8	6-May-97	40	0	mg/kg	0.003 U					0.001 J	0.003 U	0.003 U	0.003 U		0.003 U	0.002 J	SAIC 1997
MW-9	25-Aug-00	0	15	mg/kg	UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.13 UJ	E+E 2000a
MW-9	25-Aug-00	15	25	mg/kg	0.062 U	0.062 U	0.062 U	0.062 U		0.062 U	0.062 U	0.062 U	0.062 U	0.31 U	0.062 U	0.12 U	E+E 2000a
MW-9	25-Aug-00	25	30	mg/kg	UJ	0.068 UJ	0.068 UJ	0.068 UJ		0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.34 UJ	0.068 UJ	0.14 UJ	E+E 2000a
MW-9	25-Aug-00	30	35	mg/kg	UJ	0.064 UJ	0.064 UJ	0.064 UJ		0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.32 UJ	0.064 UJ	0.13 UJ	E+E 2000a
MW-9	25-Aug-00	35	40	mg/kg	UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.12 UJ	E+E 2000a
MW-9	25-Aug-00	40	45	mg/kg	UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.13 UJ	E+E 2000a
MW-9	25-Aug-00	45	50	mg/kg	UJ	0.067 UJ	0.067 UJ	0.067 UJ		0.067 UJ	0.067 UJ	0.067 UJ	0.067 UJ	0.33 UJ	0.067 UJ	0.13 UJ	E+E 2000a
MW-10	26-Aug-00	0	10	mg/kg	UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.12 UJ	E+E 2000a
MW-10	26-Aug-00	10	15	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.12 UJ	E+E 2000a
MW-10	26-Aug-00	15	20	mg/kg	UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.13 UJ	E+E 2000a
MW-10	26-Aug-00	20	25	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.12 UJ	E+E 2000a
MW-10	26-Aug-00	25	30	mg/kg	UJ	0.057 UJ	0.057 UJ	0.057 UJ		0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.28 UJ	0.057 UJ	0.11 UJ	E+E 2000a
MW-10	26-Aug-00	30	35	mg/kg	UJ	0.057 UJ	0.057 UJ	0.057 UJ		0.057 UJ	0.057 UJ	0.057 UJ	0.057 UJ	0.28 UJ	0.057 UJ	0.11 UJ	E+E 2000a
MW-10	26-Aug-00	35	40	mg/kg	UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.13 UJ	E+E 2000a
MW-10	26-Aug-00	40	45	mg/kg	UJ	0.069 UJ	0.069 UJ	0.069 UJ		0.069 UJ	0.069 UJ	0.069 UJ	0.069 UJ	0.35 UJ	0.069 UJ	0.14 UJ	E+E 2000a
MW-18	18-Jul-02	5	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U		Farallon 2003
MW-18	18-Jul-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
MW-18	18-Jul-02	44	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
MW-21	22-Jul-02	5	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0061 U	0.0012 U		Farallon 2003
MW-21	22-Jul-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
MW-21	22-Jul-02	43	0	mg/kg	U	0.0014 U	0.0014 U	0.0014 U		0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0014 U		Farallon 2003
MW-19	25-Jul-02	5	0	mg/kg	U	0.0014 U	0.0014 U	0.0014 U		0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0068 U	0.0014 U		Farallon 2003
MW-19	25-Jul-02	10	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0013 U		Farallon 2003
MW-19	25-Jul-02	43	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U		Farallon 2003
MW-11 SB05	29-Jan-01	5	6.5	mg/kg	66 U	66 U	66 U	66 U		66 U	66 U	66 U	66 U	330 U	66 U	130 U	E+E 2001
MW-11 SB15	29-Jan-01	15	16.5	mg/kg	64 U	64 U	64 U	64 U		64 U	64 U	64 U	64 U	320 U	64 U	130 U	E+E 2001
MW-11 SB50	29-Jan-01	50	51.5	mg/kg	68 U	68 U	68 U	68 U		68 U	68 U	68 U	68 U	340 U	68 U	140 U	E+E 2001
MW-12 SB05	30-Jan-01	5	6.5	mg/kg	64 U	64 U	64 U	64 U		64 U	64 U	64 U	64 U	320 U	64 U	130 U	E+E 2001
MW-12 SB15	30-Jan-01	15	16.5	mg/kg	65 U	65 U	65 U	65 U		65 U	65 U	65 U	65 U	320 U	65 U	130 U	E+E 2001
MW-12 SB49	30-Jan-01	49	50.5	mg/kg	65 U	65 U	65 U	65 U		65 U	65 U	65 U	65 U	320 U	65 U	130 U	E+E 2001
MW-13 SB15	30-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-13 SB20	20-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-13 SB49	30-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-14 SB20	31-Jan-01	20	21.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-14 SB35	31-Jan-01	35	36.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-14 SB49	31-Jan-01	48.5	50	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-15 SB15	31-Jan-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-15 SB25	31-Jan-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-15 SB49	31-Jan-01	49	50.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-16 SB15	1-Feb-01	15	16.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-16 SB25	1-Feb-01	25	26.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-16 SB48	1-Feb-01	48	49.5	mg/kg	0 U	0 U	0 U	0 U		0 U	0 U	0 U	0 U	0 U	0 U	0 U	E+E 2001
MW-R8	24-Aug-00	0	15	mg/kg	UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.12 UJ	E+E 2000a
MW-R8	24-Aug-00	15	25	mg/kg	UJ	0.062 UJ	0.062 UJ	0.062 UJ		0.062 UJ	0.062 UJ	0.062 UJ	0.062 UJ	0.31 UJ	0.062 UJ	0.12 UJ	E+E 2000a
MW-R8	24-Aug-00	25	35	mg/kg	UJ	0.061 UJ	0.061 UJ	0.061 UJ		0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.061 UJ	0.12 UJ	E+E 2000a
MW-R9	25-Aug-00	0	15	mg/kg	UJ	0.058 UJ	0.058 UJ	0.058 UJ		0.058 UJ	0.058 UJ	0.058 UJ	0.058 UJ	0.29 UJ	0.058 UJ	0.12 UJ	E+E 2000a
MW-R9	25-Aug-00	15	25	mg/kg	UJ	0.061 UJ	0.061 UJ	0.061 UJ		0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.061 UJ	0.12 UJ	E+E 2000a
MW-R9	25-Aug-00	25	35	mg/kg	UJ	0.061 UJ	0.061 UJ	0.061 UJ		0.061 UJ	0.061 UJ	0.061 UJ	0.061 UJ	0.3 UJ	0.061 UJ	0.12 UJ	E+E 2000a
MW-R10	27-Aug-00	0	20	mg/kg	UJ	0.059 UJ	0.059 UJ	0.059 UJ		0.059 UJ	0.059 UJ	0.059 UJ	0.059 UJ	0.29 UJ	0.059 UJ	0.12 UJ	E+E 2000a
MW-R10	27-Aug-00	20	25	mg/kg	UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.13 UJ	E+E 2000a
MW-R10	27-Aug-00	25	35	mg/kg	UJ	0.068 UJ	0.068 UJ	0.068 UJ		0.068 UJ	0.068 UJ	0.068 UJ	0.068 UJ	0.34 UJ	0.068 UJ	0.14 UJ	E+E 2000a
MW-R11	27-Aug-00	0	15	mg/kg	UJ	0.063 UJ	0.063 UJ	0.063 UJ		0.063 UJ	0.063 UJ	0.063 UJ	0.063 UJ	0.32 UJ	0.063 UJ	0.13 UJ	E+E 2000a
MW-R11	27-Aug-00	15	25	mg/kg	UJ	0.064 UJ	0.064 UJ	0.064 UJ		0.064 UJ	0.064 UJ	0.064 UJ	0.064 UJ	0.32 UJ	0.064 UJ	0.13 UJ	E+E 2000a
MW-R11	27-Aug-00	25	35	mg/kg	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ		0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.3 UJ	0.06 UJ	0.12 UJ	E+E 2000a
RS-1	9-Jul-02	5	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	0.0013 U		Farallon 2003
RS-1	9-Jul-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0012 U		Farallon 2003
RS-1	9-Jul-02	44	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
RS-2	10-Jul-02	5	0	mg/kg	U	0.0063 U	0.0063 U	0.0063 U		0.0063 U	0.0063 U	0.0063 U	0.0063 U	0.032 U	0.0063 U		Farallon 2003
RS-2	10-Jul-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
RS-2	10-Jul-02	45	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
RS-5	11-Jun-02	5	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U		Farallon 2003
RS-5	11-Jun-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0012 U		Farallon 2003
RS-8	10-Jun-02	5	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 UU	0.0013 U	0.0013 U	0.0013 U	0.0064 U	0.0013 U		Farallon 2003
RS-8	10-Jun-02	10	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U		Farallon 2003
RS-8A	24-Jun-02	5	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 UJ	0.0013 U		Farallon 2003
RS-8A	24-Jun-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 UJ	0.0012 U		Farallon 2003
RS-8A	24-Jun-02	44	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0058 UJ	0.0012 U		Farallon 2003
RS-9	11-Jul-02	31	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0062 U	0.0012 U		Farallon 2003
RS-9	11-Jul-02	10	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0063 U	0.0013 U		Farallon 2003
RS-9	11-Jul-02	49	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.006 U	0.0012 U		Farallon 2003
RS-12	12-Jul-02	5	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0065 U	0.0013 U		Farallon 2003
RS-12	12-Jul-02	10	0	mg/kg	U	0.0012 U	0.0012 U	0.0012 U		0.0012 U	0.0012 U	0.0012 U	0.0012 U	0.0059 U	0.0012 U		Farallon 2003
RS-12	12-Jul-02	40	0	mg/kg	U	0.0011 U	0.0011 U	0.0011 U		0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0057 U	0.0011 U		Farallon 2003
RS-16	1-Jul-02	43	0	mg/kg	U	0.0013 U	0.0013 U	0.0013 U		0.0013 U	0.0013 U	0.0013 U	0.0013 U	0.0064 UJ	0.0013 U		Farallon 2003
RS-31	3-Sep-03	14	15.5	mg/kg							0.016 U	0.016 U	0.016 U		0.016 U		Farallon 2004
RS-31	3-Sep-03	17	18.5	mg/kg							0.013 U	0.013 U	0.013 U		0.013 U		Farallon 2004
RS-30	4-Sep-03	18.5	20	mg/kg							0.0011 U	0.0011 U	0.0011 U		0.0011 U		Farallon 2004
SP-1	12-Aug-99	2.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-1	12-Aug-99	5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-1	12-Aug-99	7.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-2	12-Aug-99	4	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-2	12-Aug-99	9.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-3	12-Aug-99	3.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-3	12-Aug-99	7.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-4	18-Aug-99	12	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001

Table A-1. Soil Analytical Results for Other VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	o-Xylene	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetrachloro-ethane (N_O_S_)	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
SP-4	18-Aug-99	6.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-5	18-Aug-99	11.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-5	18-Aug-99	6	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-6	18-Aug-99	11.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-6	18-Aug-99	7.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-7	18-Aug-99	11	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-7	18-Aug-99	6	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-8	18-Aug-99	11	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
SP-8	18-Aug-99	6	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-5	19-Aug-99	1.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-5	19-Aug-99	6	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-5	19-Aug-99	9	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-6	19-Aug-99	1.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-6	19-Aug-99	8	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-7	19-Aug-99	3	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001
TP-7	19-Aug-99	8.5	0	mg/kg							0.05 U	0.05 U	0.05 U		0.05 U		GeoEngineers 2001

Notes:
mg/kg - milligram per kilogram
U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit
J - analyte detected but value is an estimated quantity

Table A-2. Soil Analytical Results for Petroleum Hydrocarbons

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Diesel	Gasoline	Oil	Reference
EX-01	28-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-01	28-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-02	28-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-02	28-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-03	28-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-03	28-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-04	22-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-04	22-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-05	22-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-05	22-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-06	22-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-06	22-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-10	15-Sep-99	4	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX-11	15-Sep-99	9	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX-12	15-Sep-99	4	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX-13	22-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-14	22-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-15	22-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-16	28-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-16	28-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-17	28-Sep-99	4	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-17	28-Sep-99	9	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-18	28-Sep-99	10	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-19	28-Sep-99	10	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-20	29-Sep-99	20	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX-21	15-Sep-99	4	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX-22	22-Sep-99	10	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX	15-Sep-99	9	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX	15-Sep-99	9	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX	15-Sep-99	10	0	mg/kg	0.05 U		0.05 U	GeoEngineers 2001
EX	22-Sep-99	10	0	mg/kg	46	53	40 U	GeoEngineers 2001
EX	22-Sep-99	10	0	mg/kg	360	120	40 U	GeoEngineers 2001
EX	24-Sep-99	12	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX	24-Sep-99	14	0	mg/kg	350	10 U	94	GeoEngineers 2001
EX	24-Sep-99	16	0	mg/kg	20 U		40 U	GeoEngineers 2001
EX	28-Sep-99	18	0	mg/kg	20 U		40 U	GeoEngineers 2001
Excavation	29-Sep-99	0	0	mg/kg	20 U		40 U	GeoEngineers 2001

Notes:
ft - feet
mg/kg - milligram per kilogram
U - analyte not detected at given detection limit

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
AB-1	26-Jun-00	13	17.5	ug/l	500 U	500 U	500 U	500 U		500 U	500 U		500 U	500 U	500 U	500 U	2500 U	500 U	500 U	500 U		500 U	500 U	500 U	500 U	500 U	500 U	2500 U	2500 U	500 U	
AB-1	26-Jun-00	25	35	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
AB-2	27-Jun-00	12	16	ug/l	500 U	500 U	500 U	500 U		500 U	500 U		500 U	500 U	500 U	500 U	2500 U	500 U	500 U	500 U		500 U	500 U	500 U	500 U	500 U	500 U	2500 U	2500 U	500 U	
AB-2	30-Jun-00	0	0	ug/l	500 U						500 U		500 U	500 U	500 U		2500 U		500 U			500 U		500 U		500 U	500 U	2500 U	2500 U	500 U	
AB-3	28-Jun-00	16	20	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	
AB-3	28-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-3	30-Jun-00	0	0	ug/l	2 U	2 U		2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	10 U	10 U	2 U	
AB-4	28-Jun-00	12	16	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
AB-4	28-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-4	30-Jun-00	0	0	ug/l	100 U						100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	500 U	500 U	100 U	
AB-5	29-Jun-00	16	20	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
AB-5	29-Jun-00	44	48	ug/l	3 U	3 U	3 U	3 U		3 U	3 U		3 U	3 U	3 U	3 U	15 U	3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	15 U	15 U	3 U	
AB-5	29-Jun-00	0	0	ug/l		0.4 U					4 U										4 U										
AB-5	29-Jun-00	0	0	ug/l		0.4 U					4 U										4 U										
AB-5	3-Jul-00	0	0	ug/l	3 U	3 U		3 U		3 U	3 U		3 U	3 U	3 U	3 U	5 U	3 U	3 U	3 U		3 U	1 U	3 U	3 U	3 U	3 U	5 U	5 U	3 U	
AB-6	29-Jun-00	12	16	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
AB-6	29-Jun-00	20	24	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
AB-6	29-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-6	29-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-6	3-Jul-00	0	0	ug/l	100 U	1 U		1 U		1 U	100 U		100 U	100 U	100 U	1 U	500 U	1 U	100 U	1 U		100 U	1 U	100 U	1 U	100 U	100 U	500 U	500 U	100 U	
AB-7	1-Jul-00	0	0	ug/l		2 U					20 U										20 U										
AB-7	1-Jul-00	0	0	ug/l		2 U					20 U										20 U										
AB-8	28-Jun-00	0	0	ug/l	500 U						500 U		500 U	500 U	500 U		2500 U		500 U			500 U		500 U		500 U	500 U	2500 U	2500 U	500 U	
AB-8	29-Jun-00	12	16	ug/l	500 U	500 U	500 U	500 U		500 U	500 U		500 U	500 U	500 U	500 U	2500 U	500 U	500 U	500 U		500 U	500 U	500 U	500 U	500 U	500 U	2500 U	2500 U	500 U	
AB-8	1-Jul-00	0	0	ug/l		20 U					200 U										200 U										
AB-8	1-Jul-00	0	0	ug/l		20 U					200 U										200 U										
AB-9	30-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-9	30-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-10	30-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AB-10	30-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AW2	27-Jun-00	0	0	ug/l		20 U					200 U										200 U										
AW2	27-Jun-00	0	0	ug/l		20 U					200 U										200 U										
B-01	31-Mar-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-01	31-Mar-98	35	0	ug/l		1 U				1 U	1 U									1 U											
B-02	31-Mar-98	20	0	ug/l		10 U				10 U	10 U									10 U											
B-02	31-Mar-98	35	0	ug/l		10 U				10 U	10 U									10 U											
B-02	27-Apr-98	0	0	ug/l		20 U				20 U	20 U																				
B-02	27-Apr-98	0	0	ug/l		20 U				20 U	20 U																				
B-02	27-Apr-98	0	0	ug/l		20 U				20 U	20 U																				
B-02	27-Apr-98	0	0	ug/l		20 U				20 U	20 U																				
B-03	31-Mar-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-03	31-Mar-98	30	0	ug/l		1 U				1 U	1 U									1 U											
B-04	31-Mar-98	15	17	ug/l		1 U				1 U	1 U									1 U											
B-05	1-Apr-98	28	0	ug/l		1 U				1 U	1 U									1 U											
B-05	1-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-05	1-Apr-98	28	0	ug/l		1 U				1 U	1 U									1 U											
B-06	1-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-06	1-Apr-98	35	0	ug/l		1 U				1 U	1 U									1 U											
B-07	1-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-07	1-Apr-98	30	0	ug/l		1 U				1 U	1 U									1 U											
B-08	1-Apr-98	18	0	ug/l		1 U				1 U	1 U									1 U											
B-08	1-Apr-98	35	0	ug/l		1 U				1 U	1 U									1 U											
B-11	2-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-11	2-Apr-98	32	0	ug/l		1 U				1 U	1 U									1 U											
B-13	2-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-13	2-Apr-98	31	0	ug/l		1 U				1 U	1 U									1 U											
B-14	2-Apr-98	20	0	ug/l		1 U				1 U	1 U									5.4											
B-14	2-Apr-98	34	0	ug/l		1 U				1 U	1 U									1 U											
B-15	2-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-15	2-Apr-98	35	0	ug/l		1 U				1 U	1 U									1 U											
B-16	2-Apr-98	20	0	ug/l		1 U				1 U	1 U									1 U											
B-16	2-Apr-98	34	0	ug/l		1 U				1 U	1 U									1 U											

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
B-17	2-Apr-98	19	0	ug/l		1 U		1 U		1 U	1 U									1 U											
B-17	2-Apr-98	34	0	ug/l		1 U		1 U		1 U	1 U									1 U											
B-18	2-Apr-98	15	0	ug/l		1 U		1 U		1 U	1 U									1 U											
B-19	2-Apr-98	20	0	ug/l		1 U		1 U		1 U	1 U									1 U											
B-20	27-Apr-98	11	13	ug/l		20 U				20 U	20 U																				
B-23	27-Apr-98	10	12	ug/l		4 U		4 U		4 U	4 U									4 U											
B-24	27-Apr-98	13	15	ug/l		4 U		4 U		4 U	4 U									4 U											
B-25	27-Apr-98	13	15	ug/l		1 U		1 U		1 U	1 U									1 U											
B-26	27-Apr-98	13	15	ug/l		1 U		1 U		1 U	1 U									1 U											
B-27	27-Apr-98	13	15	ug/l		1 U		1 U		1 U	1 U									4											
CULVHD	28-Dec-98	0	0	ug/l	2 U	1 U		1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 UJ	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
Excavation	14-Sep-99	0	0	ug/l	1 U	17	1 U	4.5		14	12000									1 U											
Excavation	22-Sep-99	0	0	ug/l	1 U	6	1 U	1 U		1 U	1 U									1 U											
GP-1	20-Jun-00	0	16	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U		100 U	
GP-1	20-Jun-00	0	0	ug/l		0.4 U					40 U										40 U										
GP-1	20-Jun-00	0	0	ug/l		0.4 U					4 U										4 U										
GP-2	20-Jun-00	0	16	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U		1 U	
GP-2	20-Jun-00	0	0	ug/l		0.2 U					2 U										2 U										
GP-3	20-Jun-00	0	0	ug/l		0.2 U					2 U										2 U										
GP-A3	26-Jun-00	25	30	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
GP-A4	26-Jun-00	25	30	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
GP-A4	27-Jun-00	0	0	ug/l		20 U					200 U										200 U										
GW1	22-Jun-00	0	0	ug/l	100 U						100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	500 U		100 U	
GW2	22-Jun-00	0	0	ug/l	1 U	1 U		1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U		1 U	
GW3	27-Jun-00	0	0	ug/l		1 U					10 U										10 U										
GW5	26-Jun-00	0	0	ug/l		20 U					200 U										200 U										
GW5	26-Jun-00	0	0	ug/l		20 U					200 U										200 U										
MW-1	3-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-1	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-1	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-1	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-1	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-1	2-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
MW-1	6-Jul-99	0	0	ug/l	1 U	0.18 J	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-1	1-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
MW-1	25-Aug-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 UJ	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-1	31-Jan-01	3.9	44.94	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-1	31-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
MW-1	13-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-2	3-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-2	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-2	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-2	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-2	22-Jul-98	0	0	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	20 U		10 U	20 U
MW-2	3-Feb-99	0	0	ug/l	40 U	20 U	40 U	20 U	20 U	20 U	100 U		20 U	100 U	40 U	20 U	100 U	40 U	20 U	20 U		20 U	20 U	20 U	40 U	20 U	20 UJ	100 U		20 U	80 U
MW-2	6-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-2	2-Feb-00	0	0	ug/l	20 U	20 U	20 U	20 U	40 U	20 U	40 U		20 U	100 U	40 U	20 U	40 U	20 U	20 U	20 U		20 U	40 U	20 U	40 U	20 U	40 U	40 U		40 U	40 U
MW-2	25-Aug-00	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	25 U	5 U	
MW-2	31-Jan-01	6.22	46.78	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-2	31-Oct-01	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U		5 U	5 U	5 U	5 U	25 U	25 U	5 U	25 U
MW-2	13-Aug-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-2	12-Nov-02	44	44	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-2	5-Feb-03	43.9	43.9	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-2	13-Nov-03	41	41	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-3	3-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-3	9-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-3	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-3	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-3	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-3	3-Feb-99	0	0	ug/l	40 U	20 U	40 U	20 U	20 U	20 U	100 U		20 U	100 U	40 U	20 U	100 U	40 U	20 U	20 U		20 U	20 U	20 U	40 U	20 U	20 UJ	100 U		20 U	80 UJ
MW-3	6-Jul-99	0	0	ug/l	100 U	100 U	100 U	100 U	100 U	100 U	100 U		100 U	500 U	200 U	100 U	200 U	100 U	100 U	100 U		100 U	100 U	100 U	200 U	100 U	100 U	200 U		100 U	200 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
MW-3	2-Feb-00	0	0	ug/l	100 U	100 U	100 U	100 U	200 U	100 U	200 U		100 U	500 U	200 U	100 U	200 U	100 U	100 U	100 U		100 U	200 U	100 U	200 U	100 U	200 U	200 U		200 U	200 U
MW-3	25-Aug-00	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	25 U	5 U	
MW-3	31-Jan-01	7.38	48.4	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-3	1-Nov-01	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	50 U
MW-3	20-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-3	14-Nov-02	43	43	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-3	6-Feb-03	45.5	45.5	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-3	13-Nov-03	42.45	42.45	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-4	4-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-4	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	10 U		5 U	10 U
MW-4	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-4	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-4	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-4	2-Feb-99	0	0	ug/l	40 U	20 U	40 U	20 U	20 U	20 U	100 U		20 U	100 U	40 U	20 U	100 U	40 U	20 U	20 U		20 U	20 U	20 U	40 U	20 U	20 UJ	100 U		20 U	80 U
MW-4	7-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-4	4-Feb-00	0	0	ug/l	50 U	50 U	50 U	50 U	100 U	50 U	100 U		50 U	250 U	100 U	50 U	100 U	50 U	50 U	50 U		50 U	100 U	50 U	100 U	50 U	100 U	100 U		100 U	100 U
MW-4	26-Aug-00	0	0	ug/l	5 U	5 U		5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U		5 U	5 U	5 U	5 U	25 U	25 U	5 U	
MW-4	31-Jan-01	5.22	45.8	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-4	31-Oct-01	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	50 U
MW-4	13-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-4	13-Nov-02	43	43	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-4	13-Nov-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-4	11-Feb-03	43	43	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-4	11-Nov-03	41.45	41.45	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U		20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
MW-4	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2U		1U	2 U
MW-5	8-May-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-5	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-5	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-5	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-5	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-5	2-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
MW-5	7-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-5	4-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
MW-5	25-Aug-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 UJ	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-5	31-Jan-01	8.98	50.51	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-5	31-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
MW-5	13-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-5	13-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-5	13-Nov-02	45	45	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-5	6-Feb-03	47.5	47.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-5	11-Nov-03	45.5	45.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-6	8-May-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-6	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-6	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-6	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-6	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-6	3-Feb-99	0	0	ug/l	40 U	20 U	40 U	20 U	20 U	20 U	100 U		20 U	100 U	40 U	20 U	100 U	40 U	20 U	20 U		20 U	20 U	20 U	40 U	20 U	20 UJ	100 U		20 U	80 U
MW-6	6-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-6	2-Feb-00	0	0	ug/l	10 U	10 U	10 U	10 U	20 U	10 U	20 U		10 U	50 U	20 U	10 U	20 U	10 U	10 U	10 U		10 U	20 U	10 U	20 U	10 U	20 U	20 U		20 U	20 U
MW-6	26-Aug-00	0	0	ug/l	1 U	1 U		1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-6	31-Jan-01	7.01	46.87	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-6	31-Oct-01	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U		5 U	5 U	5 U	5 U	25 U	25 U	5 U	25 U
MW-6	13-Aug-02	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
MW-6	12-Nov-02	45	45	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
MW-6	5-Feb-03	44	44	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
MW-6	5-Feb-03	44	44	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
MW-6	13-Nov-03	39	39	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	20 U		40 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
MW-7	8-May-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
MW-7	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-7	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-7	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-7	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
MW-7	2-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
MW-7	7-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-7	4-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
MW-7	26-Aug-00	0	0	ug/l	1 U	1 U		1 U		1 UJ	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-7	31-Jan-01	3.76	44.12	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-7	31-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
MW-7	13-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-7	12-Nov-02	42	42	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-7	5-Feb-03	41.65	41.65	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-7	13-Nov-03	39	39	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-8	8-May-97	0	0	ug/l			60 U				60 U											60 U						100 U			100 U
MW-8	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	10 U		5 U	10 U
MW-8	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
MW-8	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-8	4-Feb-99	0	0	ug/l	200 U	100 U	200 U	100 U	100 U	100 U	500 U		100 U	500 U	200 U	100 U	500 U	200 U	100 U	100 U		100 U	100 U	100 U	200 U	100 U	100 UJ	500 U		100 U	400 U
MW-8	7-Jul-99	0	0	ug/l	100 U	100 U	100 U	100 U	100 U	100 U	100 U		100 U	500 U	200 U	100 U	200 U	100 U	100 U	100 U		100 U	100 U	100 U	200 U	100 U	100 U	200 U		100 U	200 U
MW-8	3-Feb-00	0	0	ug/l	100 U	100 U	100 U	100 U	200 U	100 U	200 U		100 U	500 U	200 U	100 U	200 U	100 U	100 U	100 U		100 U	200 U	100 U	200 U	100 U	200 U	200 U		200 U	200 U
MW-8	26-Aug-00	0	0	ug/l	10 U	10 U				10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	
MW-8	31-Jan-01	0	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-8	31-Oct-01	0	0	ug/l	20 U	20 U	20 U			20 U	20 U		20 U	20 U	20 U		100 U		20 U			20 U		20 U		20 U	20 U	100 U	100 U	20 U	100 U
MW-8	14-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
MW-8	13-Nov-02	43.6	43.6	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-8	6-Feb-03	42.9	42.9	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-8	13-Nov-03	41.5	41.5	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	100 U		200 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
MW-8 DIL	13-Feb-01	0	0	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-9	28-Aug-00	0	0	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-9	28-Aug-00	0	0	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	5000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	5000 U	5000 U	1000 U	
MW-9	31-Jan-01	2.6	46.09	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	5000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	5000 U	5000 U	1000 U	
MW-9	31-Oct-01	0	0	ug/l	200 U		200 U				200 U		200 U	200 U	200 U		1000 U		200 U			200 U		200 U		200 U	200 U	1000 U	1000 U	200 U	1000 U
MW-9	11-Sep-02	0	0	ug/l	100 U		100 U				100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	2500 U	500 U	100 U	1000 U
MW-9	15-Nov-02	47	47	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	2500 U	500 U	100 U	1000 U
MW-9	11-Feb-03	44.65	44.65	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	2500 U	500 U	100 U	1000 U
MW-9	13-Nov-03	42	42	ug/l		100 U	100 U	100 U		100 U	100 U								100 U	100 U		100 U		100 U		100 U					
MW-10	28-Aug-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 UJ	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-10	31-Jan-01	3.64	45.41	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-10	31-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
MW-10	21-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-10	12-Nov-02	47	47	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-10	11-Feb-03	43	43	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-10	13-Nov-03	40	40	ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
MW-11	2-Feb-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-11	13-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-12	3-Feb-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-13	3-Feb-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-14	3-Feb-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-14	14-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-14	13-Nov-02	46	46	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-14	6-Feb-03	45.48	45.48	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-14	11-Nov-03	45.5	45.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-15	3-Feb-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-16	3-Feb-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-17	14-Aug-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-17	12-Nov-02	23	23	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-17	5-Feb-03	22.05	22.05	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-17	14-Nov-03	19.7	19.7	ug/l		4 U	4 U	4 U		4 U	4 U								4 U	4 U		4 U		4 U		4 U					
MW-18	14-Aug-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
MW-18	14-Aug-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
MW-18	12-Nov-02	45.5	45.5	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
MW-18	12-Nov-02	45.5	45.5	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
MW-18	5-Feb-03	44.27	44.27	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
MW-18	14-Nov-03	45.35	45.35	ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
MW-19	12-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
MW-19	21-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
MW-19	13-Nov-02	44.5	44.5	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-19	6-Feb-03	47.35	47.35	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-19	13-Nov-03	45	45	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-19	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-20	15-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
MW-20	15-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
MW-20	13-Nov-02	23	23	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-20	6-Feb-03	24.93	24.93	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-20	14-Nov-03	22.8	22.8	ug/l		20 U	20 U	20 U		20 U	20 U								20 U	20 U		20 U		20 DU		20 DU					
MW-21	15-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
MW-21	13-Nov-02	43	43	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-21	6-Feb-03	39.5	39.5	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-21	14-Nov-03	42.61	42.61	ug/l		20 U	20 U	20 U		20 U	20 U								20 U	20 U		20 U		20 DU		20 DU					
MW-21	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-22	16-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.96 U	0.2 U		0.2 U	0.2 U	0.96 U	0.2 U	0.96 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-22	13-Nov-02	22.5	22.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-22	10-Feb-03	20	20	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
MW-22	11-Nov-03	14.74	14.74	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-23	16-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-23	13-Nov-02	44.5	44.5	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-23	10-Feb-03	47	47	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-23	11-Nov-03	42.24	42.24	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U		20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
MW-23	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-24	12-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-24	13-Nov-02	43	43	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-24	10-Feb-03	45.43	45.43	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-24	11-Nov-03	43.61	43.61	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U		20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
MW-24	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-25	14-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-25	14-Nov-02	45.5	45.5	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-25	14-Nov-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-25	11-Nov-03	41	41	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U		20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
MW-25	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-26	19-Sep-03	22.58	22.58	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-26	13-Nov-03	22	22	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	20 U		40 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
MW-27	19-Sep-03	40.13	40.13	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-27	13-Nov-03	37.1	37.1	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-28	12-Sep-03	36.77	36.77	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-28	11-Nov-03	36.84	36.84	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-29	12-Sep-03	23.03	23.03	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U		10 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U		10 U	2 U	
MW-29	13-Nov-03	20.1	20.1	ug/l	0.2U	0.2U	0.2U	0.2U		0.2U	0.2U		0.2U	0.2U	1U		2	0.2	0.2	0.2		0.2		0.2	0.2	0.2	0.2		1	0.2	
MW-30	12-Sep-03	43.99	43.99	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
MW-30	13-Nov-03	42.91	42.91	ug/l	10U	10U	10U	10U		10U	10U		10U	10U	50U		100	10	10	10		10		10	10	10	10		50	10	
MW-30	12-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-31	19-Sep-03	22.81	22.81	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-31	11-Nov-03	19.71	19.71	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-32	18-Sep-03	24.25	24.25	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-32	11-Nov-03	21.15	21.15	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-32	12-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-33	14-Apr-04	19	19	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-34	14-Apr-04	25.5	25.5	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-600	21-Nov-03	15	15	ug/l	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	1000 UJ		500 UJ	1000 UJ
MW-600	29-Jan-04	40.6	40.6	ug/l	50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U	50 U	50 U	50 U	100 U		50 U	100 U
MW-601	21-Nov-03	15	15	ug/l	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	1000 UJ		500 UJ	1000 UJ
MW-601	29-Jan-04	41.9	41.9	ug/l	50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U	50 U	50 U	50 U	100 U		50 U	100 U
MW-602	24-Nov-03	15	15	ug/l	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	100 UJ		50 UJ	100 UJ
MW-602	1-Dec-03	35	35	ug/l	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ		20 UJ	40 UJ	20 UJ	20 UJ	40 UJ	20 UJ	20 UJ	20 UJ		20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	40 UJ		20 UJ	40 UJ
MW-602	4-Dec-03	35	35	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	10 UJ	5 U	5 UJ	10 U	5 U	5 UJ	5 U		5 U	5 UJ	5 UJ	5 U	5 UJ	5 U	10 U		5 UJ	10 U
MW-602	5-Dec-03	35	35	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U	20 UJ	10 U	10 UJ	20 U	10 U	10 UJ	10 U		10 U	10 UJ	10 UJ	10 U	10 UJ	10 U	20 U		10 UJ	20 U
MW-602	5-Dec-03	35	35	ug/l	10 U	10 U	10 U	10 U	10 U	10 U	10 U		10 U	20 UJ	10 U	10 UJ	20 U	10 U	10 UJ	10 U		10 U	10 UJ	10 UJ	10 U	10 UJ	10 U	20 U		10 UJ	20 U
MW-602	29-Jan-04	38.7	38.7	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
MW-603	24-Nov-03	15	15	ug/l	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	100 UJ		50 UJ	100 UJ
MW-603	29-Jan-04	38.4	38.4	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-604	25-Nov-03	15	15	ug/l	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	400 UJ		200 UJ	400 UJ
MW-604	29-Jan-04	35.7	35.7	ug/l	50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	50 U	50 U	50 U	50 U	100 U		50 U	100 U
MW-605	24-Nov-03	15	15	ug/l	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	400 UJ		200 UJ	400 UJ
MW-605	2-Dec-03	32	32	ug/l	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ		100 UJ	200 UJ	100 UJ	100 UJ	200 UJ	100 UJ	100 UJ	100 UJ		100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	200 UJ		100 UJ	200 UJ
MW-605	3-Dec-03	32	32	ug/l	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ		100 UJ	200 UJ	100 UJ	100 UJ	200 UJ	100 UJ	100 UJ	100 UJ		100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	200 UJ		100 UJ	200 UJ
MW-605	3-Dec-03	32	32	ug/l	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ		100 UJ	200 UJ	100 UJ	100 UJ	200 UJ	100 UJ	100 UJ	100 UJ		100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	200 UJ		100 UJ	200 UJ
MW-606	6-Nov-03	35	35	ug/l	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U	5 U	2.5 U	25 U	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	10 U		2.5 U	5 U
MW-607	7-Nov-03	30	30	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U	10 U	5 U	50 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	20 U		5 U	10 U
MW-608	7-Nov-03	35	35	ug/l	13 U	13 U	13 U	13 U	13 U	13 U	13 U		13 U	13 U	25 U	13 U	130 U	13 U	13 U	13 U		13 U	13 U	13 U	13 U	13 U	13 U	50 U		13 U	25 U
MW-R1	8-Jul-99	0	0	ug/l	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U		1000 U	5000 U	2000 U	1000 U	2000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	2000 U	1000 U	1000 U	2000 U		1000 U	2000 U
MW-R1	3-Feb-00	0	0	ug/l	1000 U	1000 U	1000 U	1000 U	2000 U	1000 U	2000 U		1000 U	5000 U	2000 U	1000 U	2000 U	1000 U	1000 U	1000 U		1000 U	2000 U	1000 U	2000 U	1000 U	2000 U	2000 U		2000 U	2000 U
MW-R1	26-Aug-00	0	0	ug/l	100 U						100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	500 U	500 U	100 U	
MW-R1	30-Jan-01	5.03	26.83	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	5000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	5000 U	5000 U	1000 U	
MW-R1	30-Oct-01	0	0	ug/l	500 U		500 U				500 U		500 U	500 U	500 U		2500 U		500 U			500 U		500 U		500 U	500 U	2500 U	2500 U	500 U	2500 U
MW-R1	15-Aug-02	0	0	ug/l	400 U		400 U				400 U		400 U	400 U	400 U		2000 U		400 U			400 U		400 U		400 U	400 U	10000 U	2000 U	400 U	4000 U
MW-R1	15-Nov-02	25	25	ug/l	400 U	400 U	400 U	400 U		400 U	400 U		400 U	400 U	400 U	400 U	2000 U	400 U	400 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	10000 U	2000 U	400 U	4000 U
MW-R1	4-Feb-03	24	24	ug/l	400 U	400 U	400 U	400 U		400 U	400 U		400 U	400 U	400 U	400 U	2000 U	400 U	400 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	10000 U	2000 U	400 U	4000 U
MW-R1	12-Nov-03	23	23	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	5000 U		10000 U	1000 U	1000 U	1000 U		1000 U		1000 U	1000 U	1000 U	1000 U		5000 U	1000 U	
MW-R2	8-Jul-99	0	0	ug/l	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U		1000 U	5000 U	2000 U	1000 U	2000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	2000 U	1000 U	1000 U	2000 U		1000 U	2000 U
MW-R2	3-Feb-00	0	0	ug/l	1000 U	1000 U	1000 U	1000 U	2000 U	1000 U	2000 U		1000 U	5000 U	2000 U	1000 U	2000 U	1000 U	1000 U	1000 U		1000 U	2000 U	1000 U	2000 U	1000 U	2000 U	2000 U		2000 U	2000 U
MW-R2	26-Aug-00	0	0	ug/l	5 U	5 U		5 U		5 U	5 U		5 U	5 U	5 U	5 U	500 U	5 U	5 U	5 U		5 U		5 U	5 U	5 U	5 U	500 U	500 U	5 U	
MW-R2	30-Jan-01	5.03	26.48	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	5000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	5000 U	5000 U	1000 U	
MW-R2	31-Oct-01	0	0	ug/l	500 U		500 U				500 U		500 U	500 U	500 U		2500 U		500 U			500 U		500 U		500 U	500 U	2500 U	2500 U	500 U	2500 U
MW-R2	15-Aug-02	0	0	ug/l	100 U		100 U				100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	2500 U	500 U	100 U	1000 U
MW-R2	14-Nov-02	44	44	ug/l	200 U	200 U	200 U	200 U		200 U	200 U		200 U	200 U	200 U	200 U	1000 U	200 U	200 U	200 U		200 U	200 U	200 U	200 U	200 U	200 U	5000 U	1000 U	200 U	2000 U
MW-R2	11-Feb-03	23.5	23.5	ug/l	200 U	200 U	200 U	200 U		200 U	200 U		200 U	200 U	200 U	200 U	1000 U	200 U	200 U	200 U		200 U	200 U	200 U	200 U	200 U	200 U	5000 U	1000 U	200 U	2000 U
MW-R2	12-Nov-03	23	23	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	5000 U		10000 U	1000 U	1000 U	1000 U		1000 U		1000 U	1000 U	1000 U	1000 U		5000 U	1000 U	
MW-R3	8-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
MW-R3	3-Feb-00	0	0	ug/l	50 U	50 U	50 U	50 U	100 U	50 U	100 U		50 U	250 U	100 U	50 U	100 U	50 U	50 U	50 U		50 U	100 U	50 U	100 U	50 U	100 U	100 U		100 U	100 U
MW-R3	25-Aug-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-R3	26-Aug-00	0	0	ug/l	1 U	1 U		1 U		1 UJ	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-R3	30-Jan-01	4.72	23.94	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-R3	31-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
MW-R3	15-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R3	14-Nov-02	22	22	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R3	14-Nov-02	22	22	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R3	6-Feb-03	21.1	21.1	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
MW-R3	12-Nov-03	19	19	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
MW-R4	7-Jul-99	0	0	ug/l	500 U	500 U	500 U	500 U	500 U	500 U	500 U		500 U	2500 U	1000 U	500 U	1000 U	500 U	500 U	500 U		500 U	500 U	500 U	1000 U	500 U	500 U	1000 U		500 U	1000 U
MW-R4	4-Feb-00	0	0	ug/l	500 U	500 U	500 U	500 U	1000 U	500 U	1000 U		500 U	2500 U	1000 U	500 U	1000 U	500 U	500 U	500 U		500 U	1000 U	500 U	1000 U	500 U	1000 U	1000 U		1000 U	1000 U
MW-R4	25-Aug-00	0	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-R4	25-Aug-00	0	0	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-R4	30-Jan-01	5.03	26.83	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-R4	31-Oct-01	0	0	ug/l	50 U		50 U				50 U		50 U	50 U	50 U		250 U		50 U			50 U		50 U		50 U	50 U	250 U	250 U	50 U	250 U
MW-R4	15-Aug-02	0	0	ug/l	40 U		40 U				40 U		40 U	40 U	40 U		200 U		40 U			40 U		40 U		40 U	40 U	1000 U	200 U	40 U	400 U
MW-R4	14-Nov-02	43	43	ug/l	40 U	40 U	40 U	40 U		40 U	40 U		40 U	40 U	40 U	40 U	200 U	40 U	40 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	1000 U	200 U	40 U	400 U
MW-R4	10-Feb-03	21	21	ug/l	40 U	40 U	40 U	40 U		40 U	40 U		40 U	40 U	40 U	40 U	200 U	40 U	40 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	1000 U	200 U	40 U	400 U
MW-R4	12-Nov-03	21	21	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	500 U		1000 U	100 U	100 U	100 U		100 U		100 U	100 U	100 U	100 U		500 U	100 U	
MW-R5	8-Jul-99	0	0	ug/l	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U		2000 U	10000 U	4000 U	2000 U	4000 U	2000 U	2000 U	2000 U		2000 U	2000 U	2000 U	4000 U	2000 U	2000 U	4000 U		2000 U	4000 U
MW-R5	3-Feb-00	0	0	ug/l	2000 U	2000 U	2000 U	2000 U	4000 U	2000 U	4000 U		2000 U	10000 U	4000 U	2000 U	4000 U	2000 U	2000 U	2000 U		2000 U	4000 U	2000 U	4000 U	2000 U	4000 U	4000 U		4000 U	4000 U
MW-R5	26-Aug-00	0	0	ug/l	100 U	10 U				10 U	100 U		100 U	100 U	100 U		500 U		100 U	10 U		100 U		100 U		100 U	100 U	500 U	500 U	100 U	
MW-R5	30-Jan-01	4.51	28.51	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	5000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	5000 U	5000 U	1000 U	
MW-R5	30-Oct-01	0	0	ug/l	500 U		500 U				500 U		500 U	500 U	500 U		2500 U		500 U			500 U		500 U		500 U	500 U	2500 U	2500 U	500 U	2500 U
MW-R5	15-Aug-02	0	0	ug/l	100 U		100 U				100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	2500 U	500 U	100 U	1000 U
MW-R5	14-Nov-02	45	45	ug/l	400 U	400 U	400 U	400 U		400 U	400 U		400 U	400 U	400 U	400 U	2000 U	400 U	400 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	10000 U	2000 U	400 U	4000 U
MW-R5	7-Feb-03	25.7	25.7	ug/l	400 U	400 U	400 U	400 U		400 U	400 U		400 U	400 U	400 U	400 U	2000 U	400 U	400 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	10000 U	2000 U	400 U	4000 U
MW-R5	12-Nov-03	23	23	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	5000 U		10000 U	1000 U	1000 U	1000 U		1000 U		1000 U	1000 U	1000 U	1000 U		5000 U	1000 U	
MW-R6	9-Jul-99	0	0	ug/l	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U		2000 U	10000 U	4000 U	2000 U	4000 U	2000 U	2000 U	2000 U		2000 U	2000 U	2000 U	4000 U	2000 U	2000 U	4000 U		2000 U	4000 U
MW-R6	4-Feb-00	0	0	ug/l	2000 U	2000 U	2000 U	2000 U	4000 U	2000 U	4000 U		2000 U	10000 U	4000 U	2000 U	4000 U	2000 U	2000 U	2000 U		2000 U	4000 U	2000 U	4000 U	2000 U	4000 U	4000 U		4000 U	4000 U
MW-R6	26-Aug-00	0	0	ug/l	100 U						100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	500 U	500 U	100 U	

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
MW-R6	30-Jan-01	6	25.82	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	5000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	5000 U	5000 U	1000 U	
MW-R6	30-Oct-01	0	0	ug/l	200 U		200 U				200 U		200 U	200 U	200 U		1000 U		200 U			200 U		200 U		200 U	200 U	1000 U	1000 U	200 U	1000 U
MW-R6	20-Aug-02	0	0	ug/l	100 U		100 U				100 U		100 U	100 U	100 U		500 U		100 U			100 U		100 U		100 U	100 U	2500 U	500 U	100 U	1000 U
MW-R6	14-Nov-02	45	45	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	2500 U	500 U	100 U	1000 U
MW-R6	7-Feb-03	23	23	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	2500 U	500 U	100 U	1000 U
MW-R6	7-Feb-03	23	23	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	2500 U	500 U	100 U	1000 U
MW-R6	12-Nov-03	21	21	ug/l	1000 U	1000 U	1000 U	1000 U		1000 U	1000 U		1000 U	1000 U	5000 U		10000 U	1000 U	1000 U	1000 U		1000 U		1000 U	1000 U	1000 U	1000 U		5000 U	1000 U	
MW-R7	9-Jul-99	0	0	ug/l	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U		1000 U	5000 U	2000 U	1000 U	2000 U	1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	2000 U	1000 U	1000 U	2000 U		1000 U	2000 U
MW-R7	2-Feb-00	0	0	ug/l	1000 U	1000 U	1000 U	1000 U	2000 U	1000 U	2000 U		1000 U	5000 U	2000 U	1000 U	2000 U	1000 U	1000 U	1000 U		1000 U	2000 U	1000 U	2000 U	1000 U	2000 U	2000 U		2000 U	2000 U
MW-R7	25-Aug-00	0	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-R7	30-Jan-01	3.4	26.73	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-R7	30-Oct-01	0	0	ug/l	50 U		50 U				50 U		50 U	50 U	50 U		250 U		50 U			50 U		50 U		50 U	50 U	250 U	250 U	50 U	250 U
MW-R7	20-Aug-02	0	0	ug/l	20 U	20 U	20 U			20 U	20 U		20 U	20 U	20 U		100 U		20 U			20 U		20 U		20 U	20 U	500 U	100 U	20 U	200 U
MW-R7	14-Nov-02	42	42	ug/l	40 U	40 U	40 U	40 U		40 U	40 U		40 U	40 U	40 U	40 U	200 U	40 U	40 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	1000 U	200 U	40 U	400 U
MW-R7	7-Feb-03	14	14	ug/l	40 U	40 U	40 U	40 U		40 U	40 U		40 U	40 U	40 U	40 U	200 U	40 U	40 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	1000 U	200 U	40 U	400 U
MW-R7	12-Nov-03	22	22	ug/l	200 U	200 U	200 U	200 U		200 U	200 U		200 U	200 U	1000 U		2000 U	200 U	200 U	200 U		200 U		200 U	200 U	200 U	200 U		1000 U	200 U	
MW-R7	12-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-R8	29-Aug-00	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	25 U	5 U	
MW-R8	30-Jan-01	3.35	46.09	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-R8	30-Oct-01	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U		5 U	5 U	5 U	5 U	25 U	25 U	5 U	25 U
MW-R8	22-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-R8	20-Nov-02	48.5	48.5	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-R8	20-Nov-02	37	37	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
MW-R8	20-Nov-02	26	26	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	500 U	100 U	20 U	200 U
MW-R8	20-Nov-02	15	15	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	500 U	100 U	20 U	200 U
MW-R8	7-Feb-03	43.1	43.1	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R8	12-Nov-03	45	45	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-R9	29-Aug-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-R9	29-Aug-00	0	0	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-R9	30-Jan-01	2.74	47.47	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
MW-R9	30-Oct-01	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	50 U
MW-R9	21-Aug-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2.2	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-R9	14-Nov-02	47	47	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-R9	7-Feb-03	39.65	39.65	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
MW-R9	12-Nov-03	44	44	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-R10	29-Aug-00	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	25 U	5 U	
MW-R10	30-Jan-01	4.53	46.74	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
MW-R10	30-Oct-01	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	50 U
MW-R10	20-Aug-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
MW-R10	19-Nov-02	47	47	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
MW-R10	7-Feb-03	46.95	46.95	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	500 U	100 U	20 U	200 U
MW-R10	12-Nov-03	44	44	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	50 U		100 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
MW-R11	31-Jan-01	4.66	41.96	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
MW-R11	30-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
MW-R11	21-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	21-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	19-Nov-02	48.5	48.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	19-Nov-02	48.5	48.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	19-Nov-02	37	37	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	19-Nov-02	26	26	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	20-Nov-02	20.5	20.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	6-Feb-03	45	45	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
MW-R11	13-Nov-03	45	45	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U			1 U	0.2 U	
PW-1	3-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-1	7-Sep-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-1	31-Oct-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-1	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-1	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-1	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-2	3-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
PW-2	29-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-2	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
PW-2	3-Feb-99	0	0	ug/l	40 U	20 U	40 U	20 U	20 U	20 U	100 U		20 U	100 U	40 U	20 U	100 U	40 U	20 U	20 U		20 U	20 U	20 U	40 U	20 U	20 U	100 U		20 U	80 UJ
PW-2	6-Jul-99	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	5 U		5 U	25 U	10 U	5 U	10 U	5 U	5 U	5 U		5 U	5 U	5 U	10 U	5 U	5 U	10 U		5 U	10 U
PW-2	1-Feb-00	0	0	ug/l	10 U	10 U	10 U	10 U	20 U	10 U	20 U		10 U	50 U	20 U	10 U	20 U	10 U	10 U	10 U		10 U	20 U	10 U	20 U	10 U	20 U	20 U		20 U	20 U
PW-2	7-Sep-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-3	3-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
PW-3	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	10 U		5 U	10 U
PW-3	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
PW-3	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-3	22-Jul-98	0	0	ug/l	1 U	0.036 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-3	4-Feb-99	0	0	ug/l	20 U	10 U	20 U	10 U	10 U	10 U	50 U		10 U	50 U	20 U	10 U	50 U	20 U	10 U	10 U		10 U	10 U	10 U	20 U	10 U	10 U	50 U		10 U	40 UJ
PW-3	6-Jul-99	0	0	ug/l	100 U	100 U	100 U	100 U	100 U	100 U	100 U		100 U	500 U	200 U	100 U	200 U	100 U	100 U	100 U		100 U	100 U	100 U	200 U	100 U	100 U	200 U		100 U	200 U
PW-3	2-Feb-00	0	0	ug/l	50 U	50 U	50 U	50 U	100 U	50 U	100 U		50 U	250 U	100 U	50 U	100 U	50 U	50 U	50 U		50 U	100 U	50 U	100 U	50 U	100 U	100 U		100 U	100 U
PW-3	2-Nov-01	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	50 U
PW-3	14-Nov-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
PW-4	4-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
PW-4	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	10 U		5 U	10 U
PW-4	29-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
PW-4	29-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-4	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-4	28-Dec-98	0	0	ug/l	2 U	1 U		1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 UJ	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-4	28-Dec-98	0	0	ug/l	2 U	1 U		1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 UJ	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-4	28-Dec-98	0	0	ug/l	2 U	1 U		1 U	1 U	1 U	5 U		1.1 U	5 U	2 U	1 U	5 UJ	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-4	6-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
PW-4	30-Jan-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
PW-4	8-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-4	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-4	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-4	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-4	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-5	4-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
PW-5	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	10 U		5 U	10 U
PW-5	28-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
PW-5	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-5	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-5	28-Dec-98	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 UJ	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-5	26-Jan-99	0	0	ug/l	2 U	1 U	1 U	2 U	1 U	1 U	5 U		10 U	5 U	2 U	2 U	5 U	1 U	1 U	1 U		5 U	2 U	2 U	2 U	1 U	2 U	5 U		2 U	10 U
PW-5	9-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
PW-5	8-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-5	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-5	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-5	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-6	17-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 UJ	6.3		1 U	4 UJ
PW-6	17-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 UJ	5 U		1 U	4 UJ
PW-6	7-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
PW-6	9-Jul-99	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	2 U
PW-6	8-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-6	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-6	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-7	4-Mar-97	0	0	ug/l		3 U	3 U	3 U		3 U	3 U									3 U		3 U						5 U			5 U
PW-7	11-Apr-97			ug/l		30 U	30 U	30 U		30 U	30 U									30 U		30 U						50 U			50 U
PW-7	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	10 U		5 U	10 U
PW-7	29-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	1 U
PW-7	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-7	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-7	1-Nov-01	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	50 U	50 U	10 U	50 U
PW-7	7-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
PW-7	21-Aug-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
PW-7	14-Nov-02	53.6	53.6	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
PW-7	12-Nov-03	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U		5 U	1 U	1 U	1 U		1 U		1 U	1 U	1 U	1 U		5 U	1 U	
PW-8	4-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-8	1-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-8	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
PW-8	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-9	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-9	20-Jan-99	0	0	ug/l	200 U	100 U	200 U	100 U	100 U	100 U	500 U		100 U	500 U	200 U	100 U	500 U	200 U	100 U	100 U		100 U	100 U	100 U	200 U	100 U	100 U	500 U		100 U	400 U
PW-9	14-Apr-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 UJ	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 UJ	5 U		1 U	4 U
PW-9	2-Jun-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	1 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	2 U		1 U	4 U
PW-9	28-Jul-99	0	0	ug/l	500 U	500 U	500 U	500 U	500 U	500 U	500 U		500 U	2500 U	1000 U	500 U	1000 U	500 U	500 U	500 U		500 U	500 U	500 U	1000 U	500 U	500 U	1000 U		500 U	1000 U
PW-9	1-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-9	2-Feb-00	0	0	ug/l	200 U	200 U	200 U	200 U	400 U	200 U	400 U		200 U	1000 U	400 U	200 U	400 U	200 U	200 U	200 U		200 U	400 U	200 U	400 U	200 U	400 U	400 U		400 U	400 U
PW-9	11-May-00	0	0	ug/l	200 U	200 U	200 U	200 U	400 U	200 U	400 U		200 U	1000 U	400 U	200 U	400 U	200 U	200 U	200 U		200 U	400 U	200 U	400 U	200 U	400 U	400 U		400 U	400 U
PW-9	22-Jun-00	0	0	ug/l	200 U	200 U	200 U	200 U	400 U	200 U	400 U		200 U	1000 U	400 U	200 U	400 U	200 U	200 U	200 U		200 U	400 U	200 U	400 U	200 U	400 U	400 U		400 U	400 U
PW-9	24-Aug-00	0	0	ug/l	500 U	500 U	500 U	500 U	1000 U	500 U	1000 U		500 U	2500 U	1000 U	500 U	1000 U	500 U	500 U	500 U		500 U	1000 U	500 U	1000 U	500 U	1000 U	1000 U		1000 U	1000 U
PW-9	12-Oct-00	0	0	ug/l	200 U	200 U	200 U	200 U	200 U	200 U	200 U		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U		200 U	200 U	200 U	200 U	200 U	200 U	400 U		200 U	400 U
PW-9	30-Jan-01	0	0	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	
PW-9	1-Feb-01	0	0	ug/l	100 U	100 U	100 U	100 U	100 U	100 U	100 U		100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	200 U		100 U	200 U
PW-9	26-Apr-01	0	0	ug/l	100 U	100 U	100 U	100 U	200 U	100 U	200 U		100 U	500 U	200 U	100 U	200 U	100 U	100 U	100 U		100 U	200 U	100 U	200 U	100 U	200 U	200 U		200 U	200 U
PW-9	2-Nov-01	0	0	ug/l	20 U	20 U	20 U			20 U	20 U		20 U	20 U	20 U		100 U		20 U			20 U		20 U		20 U	20 U	100 U	100 U	20 U	100 U
PW-9	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-9	6-Aug-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
PW-9	19-Nov-02	0	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
PW-9	19-Nov-02	0	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
PW-9	12-Feb-03	0	0	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	500 U	100 U	20 U	200 U
PW-9	12-Feb-03	0	0	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U	20 U	100 U	20 U	20 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	500 U	100 U	20 U	200 U
PW-9	13-Nov-03	0	0	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	100 U		200 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
PW-14	7-Oct-97	0	0	ug/l	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			0.5 U	
PW-16	17-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 UJ	5 U		1 U	4 UJ
PW-16	1-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-16	7-Sep-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-16	2-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-17	17-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 UJ	5 U		1 U	4 UJ
PW-17	1-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-17	7-Sep-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-17	6-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-19	4-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 UJ
PW-19	1-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-19	7-Sep-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-20	2-Feb-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
PW-20	1-Feb-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-20	7-Sep-00	0	0	ug/l	1 U	1 U	1 U	1 U	2 U	1 U	2 U		1 U	5 U	2 U	1 U	2 U	1 U	1 U	1 U		1 U	2 U	1 U	2 U	1 U	2 U	2 U		2 U	2 U
PW-20	31-Jan-01	4.55	41.39	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
PW-21	10-Mar-99	0	0	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 UJ	1 U	5 UJ	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
PW-21	2-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-21	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-21	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-21	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-21	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	10		1 U	2 U
PW-22	2-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-23	2-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-23	6-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-23	13-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-24	2-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-24	11-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-25	1-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-26	6-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-26	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-26	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-26	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-26	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-26	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-27	1-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-28	1-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-29	6-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-30	6-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
PW-31	7-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-32	6-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-32	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-32	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-32	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-32	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-32	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-33	5-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-33	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-34	5-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-34	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-34	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-34	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-34	11-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-34	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-35	5-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-35	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-36	16-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-36	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-36	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-37	7-Nov-01	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	5 U
PW-37	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-37	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-38	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-38	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-38	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-38	12-Nov-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
PW-39	7-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-39	22-Aug-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
PW-39	11-Nov-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-1	1-Jun-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U		1 U	
RS-1	21-Jun-00	0	0	ug/l		0.2 U					2 U										2 U										
RS-1	22-Jun-00	0	0	ug/l	1 U	1 U		1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U	
RS-1	9-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-1	9-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-1	9-Jul-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
RS-2	10-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-2	10-Jul-02	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
RS-2	10-Jul-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
RS-3	10-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-3	11-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-3	11-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-4	29-Jun-00	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	5 U	1 U	
RS-4	16-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-4	16-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-4	16-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-5	11-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-5	11-Jul-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
RS-5	11-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-6	15-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-6	15-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-6	15-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-7	16-Jul-02	0	0	ug/l	20 U	20 U	20 U			20 U	20 U		20 U	20 U	20 U		100 U		20 U			20 U		20 U		20 U	20 U	500 U	100 U	20 U	200 U
RS-7	16-Jul-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-7	16-Jul-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-8	24-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 UJ	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-8	24-Jun-02	0	0	ug/l	1 U	1 U	1 UJ	1 U		1 U	1 U		1 U	1 U	1 U	2.8	5 U	1 U	1 U	1 U		1 U	1	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
RS-8	25-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 UJ	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.72	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.35	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-9	11-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-9	11-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-9	12-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-10	9-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
RS-10	9-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-10	9-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-10	9-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-11	12-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-11	15-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-11	15-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-12	12-Jul-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-12	12-Jul-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-12	12-Jul-02	0	0	ug/l	10 U	10 U	10 U			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-13	10-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-13	11-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-13	11-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-14	9-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-14	10-Jul-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
RS-14	10-Jul-02	0	0	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
RS-15A	26-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 UJ	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-15A	26-Jun-02	0	0	ug/l	10 U	10 U	10 UJ			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-15A	26-Jun-02	0	0	ug/l	10 U	10 U	10 UJ			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-16	1-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 UJ
RS-16	1-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 UJ
RS-16	2-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 UJ
RS-17	25-Jun-02	0	0	ug/l	10 U	10 U	10 UJ			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-17	25-Jun-02	0	0	ug/l	10 U	10 U	10 UJ			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-17A	25-Jun-02	0	0	ug/l	10 U	10 U	10 UJ			10 U	10 U		10 U	10 U	10 U		50 U		10 U	10 U		10 U		10 U		10 U	10 U	250 U	50 U	10 U	100 U
RS-18	8-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-18	8-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-18	9-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-19	3-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-19	3-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-19A	8-Jul-02	0	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-20	2-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 UJ
RS-20	2-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 UJ
RS-20	2-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 UJ
RS-20	2-Jul-02	0	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 UJ
RS-21	26-Jun-02	0	0	ug/l	4 U	4 U	4 UJ	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
RS-21	26-Jun-02	0	0	ug/l	2 U	2 U	2 UJ	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
RS-22	27-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 UJ
RS-22	27-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 UJ
RS-23A	28-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 UJ
RS-23A	28-Jun-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 UJ
RS-24	17-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
RS-24	17-Jul-02	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
RS-24	17-Jul-02	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
RS-30	4-Sep-03	18.5	0	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-30	4-Sep-03	18.5	0	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-30	4-Sep-03	31	26	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-30	4-Sep-03	42.5	0	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-30	4-Sep-03	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-31	3-Sep-03	18	18	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	1 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-31	3-Sep-03	31	31	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-31	3-Sep-03	45	45	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-33	5-Sep-03	18.5	18.5	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-33	5-Sep-03	31	31	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-33	5-Sep-03	43.5	43.5	ug/l	20 U	20 U	20 U	20 U		20 U	20 U		20 U	20 U	20 U		100 U	20 U	20 U	20 U		20 U		20 U	20 U	20 U	20 U		100 U	20 U	
RS-41	25-Aug-03	12	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-41	25-Aug-03	28.5	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-41	25-Aug-03	36.5	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-42	26-Aug-03	13.5	13.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-42	26-Aug-03	13.5	13.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-42	26-Aug-03	31	31	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-42	26-Aug-03	34.5	34.5	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-43	27-Aug-03	14	14	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Dichloro-ethane	1,1-Dichloro-ethene	1,1-Dichloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,4-Dichloro-benzene	2,2-Dichloro-propane	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone
RS-43	27-Aug-03	23	23	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-43	27-Aug-03	35	35	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-46	13-Apr-04	22	22	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-46	13-Apr-04	28	28	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U		10 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U		10 U	2 U	
RS-46	13-Apr-04	32.5	32.5	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
RS-46	13-Apr-04	40	40	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
RS-46	13-Apr-04	44.5	44.5	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
RS-47	17-Jun-04	16.5	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-47	17-Jun-04	29.5	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-47	17-Jun-04	39	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-48	16-Jun-04	16	0	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U		20 U	4 U	4 U	4 U		4 U		4 U	4 U	4 U	4 U		20 U	4 U	
RS-48	16-Jun-04	27.5	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U		10 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U		10 U	2 U	
RS-48	16-Jun-04	40	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		1 U	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U	0.2 U	0.2 U	0.2 U		1 U	0.2 U	
RS-49	15-Jun-04	15	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U		10 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U		10 U	2 U	
RS-49	15-Jun-04	27	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U		50 U	10 U	10 U	10 U		10 U		10 U	10 U	10 U	10 U		50 U	10 U	
RS-49	15-Jun-04	40	0	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U		10 U	2 U	2 U	2 U		2 U		2 U	2 U	2 U	2 U		10 U	2 U	
RS-5	11-Jul-02	0	0	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
SG2-8	20-Nov-02	18	21	ug/l	2 U	2 U	2 U	2 U		2 U	2 U		2 U	2 U	2 U	2 U	10 U	2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	50 U	10 U	2 U	20 U
SG2-9	20-Nov-02	18	21	ug/l	4 U	4 U	4 U	4 U		4 U	4 U		4 U	4 U	4 U	4 U	20 U	4 U	4 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	100 U	20 U	4 U	40 U
SG1-12	20-Nov-02	17	20	ug/l	0.4 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	10 U	2 U	0.4 U	4 U
SG1-13	20-Nov-02	18	21	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	5 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	25 U	5 U	1 U	10 U
SG1-20	20-Nov-02	18	21	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	1 U	0.2 U	2 U
SG-215	20-Nov-02	18	21	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	250 U	50 U	10 U	100 U
SP-1	12-Aug-99	15		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-1	12-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-2	12-Aug-99	15		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-2	12-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-3	12-Aug-99	15		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-3	12-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-4	18-Aug-99	15		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-4	18-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-5	18-Aug-99	15		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-5	18-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-6	18-Aug-99	15		ug/l		1 U	1 U	1 U		9	1 U								1 U	1 U		1 U		1 U		1 U					
SP-6	18-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-7	18-Aug-99	15		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-7	18-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
SP-8	18-Aug-99	15		ug/l		1 U	1 U	1 U		1	1 U								1 U	1 U		1 U		1 U		1 U					
SP-8	18-Aug-99	40		ug/l		1 U	1 U	1 U		1 U	1 U								1 U	1 U		1 U		1 U		1 U					
T-1	16-Sep-98	0	0	ug/l	2 U	2 U		1 U	5 U	5 U	2 U		2 U	5 U	1 U	2 U	5 U	2 U	1 U	1 U		2 U	2 U	2 U	1 U	1 U	2 U	5 U		2 U	4 U
T-1	20-Jan-99	0	0	ug/l	2 U	1 U		1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
T-2	22-Jul-98	0	0	ug/l	10 U	10 U			10 U	10 U	10 U		10 U	10 U	10 U		10 UJ		10 U	10 U		10 U		10 U	3.1 J	10 U	10 U	20 U		10 U	20 U
T-2	16-Sep-98	0	0	ug/l	2 U	2 U		1 U	5 U	5 U	2 U		2 U	5 U	1 U	2 U	5 U	2 U	1 U	1 U		2 U	2 U	2 U	1 U	1 U	2 U	5 U		2 U	4 U
T-2	20-Jan-99	0	0	ug/l	2 U	1 U		1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 U	2 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	5 U		1 U	4 U
WELL 3	28-Aug-00	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	25 U	5 U	
WELL 3	30-Jan-01	0	0	ug/l	10 U	10 U	10 U	10 U		10 U	10 U		10 U	10 U	10 U	10 U	50 U	10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	50 U	50 U	10 U	
WELL 9	29-Aug-00	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	25 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	25 U	5 U	
WELL 9	29-Aug-00	0	0	ug/l	100 U	100 U	100 U	100 U		100 U	100 U		100 U	100 U	100 U	100 U	500 U	100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	500 U	500 U	100 U	

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
AB-1	26-Jun-00	13	17.5	ug/l		500 U	500 U	2500 U	2500 U			500 U	500 U		500 U	500 U	500 U		500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U			500 U	500 U
AB-1	26-Jun-00	25	35	ug/l		1 U	1 U	5 U				1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
AB-2	27-Jun-00	12	16	ug/l		500 U	500 U	2500 U				500 U	500 U		500 U	500 U	500 U		500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U			500 U	500 U
AB-2	30-Jun-00	0	0	ug/l		500 U	500 U	2500 U					500 U		500 U		500 U			500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 UJ				500 U
AB-3	28-Jun-00	16	20	ug/l		2 U	2 U	10 U				2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
AB-3	28-Jun-00	0	0	ug/l																												
AB-3	30-Jun-00	0	0	ug/l		2 U	2 U	10 U	12				2 U		2 U		2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ	2 UJ				2 U
AB-4	28-Jun-00	12	16	ug/l		100 U	100 U	500 U				100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
AB-4	28-Jun-00	0	0	ug/l																												
AB-4	30-Jun-00	0	0	ug/l		100 U	100 U	500 U					100 U		100 U		100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ				100 U
AB-5	29-Jun-00	16	20	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
AB-5	29-Jun-00	44	48	ug/l		3 U	3 U	15 U	15 U			3 U	3 U		3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U			3 U	3 U
AB-5	29-Jun-00	0	0	ug/l																												
AB-5	29-Jun-00	0	0	ug/l																												
AB-5	3-Jul-00	0	0	ug/l		3 U	3 U	5 U	5 UJ				3 U		3 U		3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 UJ	3 UJ				3 U
AB-6	29-Jun-00	12	16	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
AB-6	29-Jun-00	20	24	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
AB-6	29-Jun-00	0	0	ug/l																												
AB-6	29-Jun-00	0	0	ug/l																												
AB-6	3-Jul-00	0	0	ug/l		100 U	100 U	500 U	5 U				100 U		100 U		100 U		1 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ				100 U
AB-7	1-Jul-00	0	0	ug/l																												
AB-7	1-Jul-00	0	0	ug/l																												
AB-8	28-Jun-00	0	0	ug/l		500 U	500 U	2500 U					500 U		500 U		500 U			500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 UJ				500 U
AB-8	29-Jun-00	12	16	ug/l		500 U	500 U	2500 U	2500 U			500 U	500 U		500 U	500 U	500 U		500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U			500 U	500 U
AB-8	1-Jul-00	0	0	ug/l																												
AB-8	1-Jul-00	0	0	ug/l																												
AB-9	30-Jun-00	0	0	ug/l																												
AB-9	30-Jun-00	0	0	ug/l																												
AB-10	30-Jun-00	0	0	ug/l																												
AB-10	30-Jun-00	0	0	ug/l																												
AW2	27-Jun-00	0	0	ug/l																												
AW2	27-Jun-00	0	0	ug/l																												
B-01	31-Mar-98	20	0	ug/l																1 U								1 U				
B-01	31-Mar-98	35	0	ug/l																1 U								1 U				
B-02	31-Mar-98	20	0	ug/l																10 U								10 U				
B-02	31-Mar-98	35	0	ug/l																10 U								10 U				
B-02	27-Apr-98	0	0	ug/l																20 U								20 U				
B-02	27-Apr-98	0	0	ug/l																20 U								20 U				
B-02	27-Apr-98	0	0	ug/l																20 U								20 U				
B-02	27-Apr-98	0	0	ug/l																20 U								20 U				
B-03	31-Mar-98	20	0	ug/l																1 U								1 U				
B-03	31-Mar-98	30	0	ug/l																1 U								1 U				
B-04	31-Mar-98	15	17	ug/l																1 U								1 U				
B-05	1-Apr-98	28	0	ug/l																1 U								1 U				
B-05	1-Apr-98	20	0	ug/l																1 U								1 U				
B-05	1-Apr-98	28	0	ug/l																1 U								1 U				
B-06	1-Apr-98	20	0	ug/l																1 U								1 U				
B-06	1-Apr-98	35	0	ug/l																1 U								1 U				
B-07	1-Apr-98	20	0	ug/l																1 U								1 U				
B-07	1-Apr-98	30	0	ug/l																1 U								1 U				
B-08	1-Apr-98	18	0	ug/l																1 U								1 U				
B-08	1-Apr-98	35	0	ug/l																1 U								1 U				
B-11	2-Apr-98	20	0	ug/l																1 U								1 U				
B-11	2-Apr-98	32	0	ug/l																1 U								1 U				
B-13	2-Apr-98	20	0	ug/l																1 U								1 U				
B-13	2-Apr-98	31	0	ug/l																1 U								1 U				
B-14	2-Apr-98	20	0	ug/l																1 U								1 U				
B-14	2-Apr-98	34	0	ug/l																1 U								1 U				
B-15	2-Apr-98	20	0	ug/l																1 U								1 U				
B-15	2-Apr-98	35	0	ug/l																1 U								1 U				
B-16	2-Apr-98	20	0	ug/l																1 U								1 U				
B-16	2-Apr-98	34	0	ug/l																1 U								1 U				

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
B-17	2-Apr-98	19	0	ug/l																1 U			1 U									
B-17	2-Apr-98	34	0	ug/l																1 U			1 U									
B-18	2-Apr-98	15	0	ug/l																1 U			1 U									
B-19	2-Apr-98	20	0	ug/l																1 U			1 U									
B-20	27-Apr-98	11	13	ug/l																20 U			20 U									
B-23	27-Apr-98	10	12	ug/l																4 U			4 U									
B-24	27-Apr-98	13	15	ug/l																4 U			4 U									
B-25	27-Apr-98	13	15	ug/l																1 U			1 U									
B-26	27-Apr-98	13	15	ug/l																1 U			1 U									
B-27	27-Apr-98	13	15	ug/l																1 U			1 U									
CULVHD	28-Dec-98	0	0	ug/l		1 U	1 U	2 UJ	2 U				1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U
Excavation	14-Sep-99	0	0	ug/l																1 U			1 U	2800								
Excavation	22-Sep-99	0	0	ug/l																1 U			1 U	1 U								
GP-1	20-Jun-00	0	16	ug/l		100 U	100 U	500 U	500 UJ			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
GP-1	20-Jun-00	0	0	ug/l																												
GP-1	20-Jun-00	0	0	ug/l																												
GP-2	20-Jun-00	0	16	ug/l		1 U	1 U	5 U	6 J			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
GP-2	20-Jun-00	0	0	ug/l																												
GP-3	20-Jun-00	0	0	ug/l																												
GP-A3	26-Jun-00	25	30	ug/l		1 U	1 U	5 U				1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
GP-A4	26-Jun-00	25	30	ug/l		100 U	100 U	500 U				100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
GP-A4	27-Jun-00	0	0	ug/l																												
GW1	22-Jun-00	0	0	ug/l		100 U	100 U	500 U					100 U		100 U		100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U				100 U
GW2	22-Jun-00	0	0	ug/l		1 U	1 U	5 U	5 UJ				1 U		1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
GW3	27-Jun-00	0	0	ug/l																												
GW5	26-Jun-00	0	0	ug/l																												
GW5	26-Jun-00	0	0	ug/l																												
MW-1	3-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-1	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
MW-1	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-1	27-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-1	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-1	2-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 U			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
MW-1	6-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-1	1-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-1	25-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 UJ		1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ			1 U	1 U
MW-1	31-Jan-01	3.9	44.94	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-1	31-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-1	13-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-2	3-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-2	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
MW-2	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-2	28-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-2	22-Jul-98	0	0	ug/l	10 U	10 U	10 U	20 U	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U		20 U	10 U	10 U	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
MW-2	3-Feb-99	0	0	ug/l		20 U	20 U	40 U	40 U			20 U	20 U	20 UJ	40 U	40 U	40 U		20 U	20 U	20 U	40 U	20 UJ	40 UJ	21 U	20 U	100 U		20 U		20 U	20 U
MW-2	6-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-2	2-Feb-00	0	0	ug/l		20 U	20 U	40 U	80 U			20 U	20 U	40 U	20 U	20 U	20 U		40 U	20 U	20 U	20 U	20 U	40 U	21 U	20 U	20 U	20 U	40 U		20 U	40 U
MW-2	25-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U			5 U	5 U		5 U	5 U	5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ			5 U	5 U
MW-2	31-Jan-01	6.22	46.78	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-2	31-Oct-01	0	0	ug/l		5 U	5 U	25 U	25 U				5 U	5 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U				5 U
MW-2	13-Aug-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
MW-2	12-Nov-02	44	44	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-2	5-Feb-03	43.9	43.9	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-2	13-Nov-03	41	41	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-3	3-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-3	9-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
MW-3	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-3	27-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-3	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-3	3-Feb-99	0	0	ug/l		20 U	20 U	40 U	40 UJ			20 U	20 U	20 UJ	40 U	40 U	40 U		20 U	20 U	20 U	40 U	20 UJ	40 U	21 U	20 U	100 U	200 J	20 U		20 U	20 U
MW-3	6-Jul-99	0	0	ug/l		100 U	100 U	200 U	4000 U			100 U	100 U	100 U	100 U	100 U	100 U		200 U	100 U	100 U	500 U	100 U	200 U	106 U	100 U	100 U	200 U	100 U		100 U	100 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
MW-3	2-Feb-00	0	0	ug/l		100 U	100 U	200 U	400 U			100 U	100 U	200 U	100 U	100 U	100 U		200 U	100 U	100 U	100 U	100 U	200 U	106 U	100 U	100 U	100 U	200 U		100 U	200 U
MW-3	25-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U			5 U	5 U		5 U	5 U	5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ			5 U	5 U
MW-3	31-Jan-01	7.38	48.4	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-3	1-Nov-01	0	0	ug/l		10 U	10 U	50 U	50 U				10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-3	20-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
MW-3	14-Nov-02	43	43	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-3	6-Feb-03	45.5	45.5	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-3	13-Nov-03	42.45	42.45	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-4	4-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-4	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	10 U	20 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
MW-4	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-4	27-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-4	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-4	2-Feb-99	0	0	ug/l		20 U	20 U	40 U	40 U			20 U	20 U	20 UJ	40 U	40 U	40 U		20 U	20 U	20 U	40 U	20 UJ	40 UJ	21 U	20 U	100 U		20 U		20 U	20 U
MW-4	7-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-4	4-Feb-00	0	0	ug/l		50 U	50 U	100 U	200 U			50 U	50 U	100 U	50 U	50 U	50 U		100 U	50 U	50 U	50 U	50 U	100 U	53 U	50 U	50 U	50 U	100 U		50 U	100 U
MW-4	26-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U				5 UJ		5 U		5 U		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ				5 U
MW-4	31-Jan-01	5.22	45.8	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-4	31-Oct-01	0	0	ug/l		10 U	10 U	50 U	50 U				10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-4	13-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
MW-4	13-Nov-02	43	43	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-4	13-Nov-02	0	0	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-4	11-Feb-03	43	43	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-4	11-Nov-03	41.45	41.45	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
MW-4	11-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-5	8-May-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-5	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
MW-5	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-5	27-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-5	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-5	2-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 U			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
MW-5	7-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-5	4-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
MW-5	25-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 UJ		1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ			1 U	1 U
MW-5	31-Jan-01	8.98	50.51	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-5	31-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-5	13-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-5	13-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-5	13-Nov-02	45	45	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-5	6-Feb-03	47.5	47.5	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-5	11-Nov-03	45.5	45.5	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-6	8-May-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-6	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
MW-6	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-6	28-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-6	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-6	3-Feb-99	0	0	ug/l		20 U	20 U	40 U	40 U			20 U	20 U	20 UJ	40 U	40 U	40 U		20 U	20 U	20 U	40 U	20 UJ	40 UJ	21 U	20 U	100 U		20 U		20 U	20 U
MW-6	6-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-6	2-Feb-00	0	0	ug/l		10 U	10 U	20 U	40 U			10 U	10 U	20 U	10 U	10 U	10 U		20 U	10 U	10 U	10 U	10 U	20 U	11 U	10 U	10 U	10 U	20 U		10 U	20 U
MW-6	26-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U				1 UJ		1 U		1 U		1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ				1 U
MW-6	31-Jan-01	7.01	46.87	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-6	31-Oct-01	0	0	ug/l		5 U	5 U	25 U	25 U				5 U	5 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U				5 U
MW-6	13-Aug-02	0	0	ug/l		1 U	1 U	10 U	25 U				1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-6	12-Nov-02	45	45	ug/l		1 U	1 U	10 U	25 U			1 U	1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-6	5-Feb-03	44	44	ug/l		1 U	1 U	10 U	25 U			1 U	1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-6	5-Feb-03	44	44	ug/l		1 U	1 U	10 U	25 U			1 U	1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-6	13-Nov-03	39	39	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
MW-7	8-May-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
MW-7	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
MW-7	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-7	27-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-7	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
MW-7	2-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 U			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
MW-7	7-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-7	4-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 UJ	2 U		1 U	2 U
MW-7	26-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U				1 UJ		1 U		1 U		1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ				1 U
MW-7	31-Jan-01	3.76	44.12	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-7	31-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-7	13-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-7	12-Nov-02	42	42	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-7	5-Feb-03	41.65	41.65	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-7	13-Nov-03	39	39	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-8	8-May-97	0	0	ug/l				100 U							60 U	60 U	60 U			60 U	60 U	60 U	60 U	60 U	60 U	60 U		60 U				
MW-8	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	10 U	20 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
MW-8	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-8	28-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-8	4-Feb-99	0	0	ug/l		100 U	100 U	200 U	200 UJ			100 U	100 U	100 UJ	200 U	200 U	200 U		100 UJ	100 U	100 U	200 U	100 UJ	200 U	106 U	100 U	500 U	1000 UJ	100 U		100 U	100 U
MW-8	7-Jul-99	0	0	ug/l		100 U	100 U	200 U	4000 U			100 U	100 U	100 U	100 U	100 U	100 U		200 U	100 U	100 U	500 U	100 U	200 U	106 U	100 U	100 U	200 U	100 U		100 U	100 U
MW-8	3-Feb-00	0	0	ug/l		100 U	100 U	200 U	400 U			100 U	100 U	200 U	100 U	100 U	100 U		200 U	100 U	100 U	100 U	100 U	200 U	106 U	100 U	100 U	100 U	200 U		100 U	200 U
MW-8	26-Aug-00	0	0	ug/l		10 U	10 U	50 U	50 U				10 UJ		10 U		10 U			10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ				10 U
MW-8	31-Jan-01	0	0	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-8	31-Oct-01	0	0	ug/l		20 U	20 U	100 U					20 U	20 U	20 U	20 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				20 U
MW-8	14-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-8	13-Nov-02	43.6	43.6	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-8	6-Feb-03	42.9	42.9	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-8	13-Nov-03	41.5	41.5	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
MW-8 DIL	13-Feb-01	0	0	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-9	28-Aug-00	0	0	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 UJ		100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 UJ			100 U	100 U
MW-9	28-Aug-00	0	0	ug/l		1000 U	1000 U	5000 U				1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			1000 U	1000 U
MW-9	31-Jan-01	2.6	46.09	ug/l		1000 U	1000 U	5000 U	5000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			1000 U	1000 U
MW-9	31-Oct-01	0	0	ug/l		200 U	200 U	1000 U					200 U	200 U	200 U	200 U	200 U			200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U				200 U
MW-9	11-Sep-02	0	0	ug/l		100 U	100 U	1000 U					100 U	100 U	100 U	500 U	100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U				100 U
MW-9	15-Nov-02	47	47	ug/l		100 U	100 U	1000 U	2500 U			100 U	100 U	100 U	100 U	500 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-9	11-Feb-03	44.65	44.65	ug/l		100 U	100 U	1000 U	2500 U			100 U	100 U	100 U	100 U	500 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-9	13-Nov-03	42	42	ug/l										100 U	100 U	100 U	200 U			100 U	100 U	100 U	100 U	500 U	100 U	100 U						
MW-10	28-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 UJ		1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ			1 U	1 U
MW-10	31-Jan-01	3.64	45.41	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-10	31-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-10	21-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-10	12-Nov-02	47	47	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-10	11-Feb-03	43	43	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-10	13-Nov-03	40	40	ug/l										1 U	1 U	1 U	2 U			1 U	1 U	1 U	1 U	5 U	1 U	1 U						
MW-11	2-Feb-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-11	13-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-12	3-Feb-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-13	3-Feb-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-14	3-Feb-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-14	14-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-14	13-Nov-02	46	46	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-14	6-Feb-03	45.48	45.48	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-14	11-Nov-03	45.5	45.5	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-15	3-Feb-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-16	3-Feb-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-17	14-Aug-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
MW-17	12-Nov-02	23	23	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-17	5-Feb-03	22.05	22.05	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-17	14-Nov-03	19.7	19.7	ug/l										4 U	4 U	4 U	8 U			4 U	4 U	4.8	4 U	20 U	4 U	4 U						
MW-18	14-Aug-02	0	0	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
MW-18	14-Aug-02	0	0	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
MW-18	12-Nov-02	45.5	45.5	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
MW-18	12-Nov-02	45.5	45.5	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
MW-18	5-Feb-03	44.27	44.27	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
MW-18	14-Nov-03	45.35	45.35	ug/l										1 U	1 U	1 U	2 U			1 U	1 U	1 U	1 U	5 U	1 U	1 U						
MW-19	12-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
MW-19	21-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-19	13-Nov-02	44.5	44.5	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-19	6-Feb-03	47.35	47.35	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-19	13-Nov-03	45	45	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-19	11-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1 U	2 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U		1 U	1 U
MW-20	15-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-20	15-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-20	13-Nov-02	23	23	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-20	6-Feb-03	24.93	24.93	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-20	14-Nov-03	22.8	22.8	ug/l										20 U	20 U	20 U	40 U			20 U	20 U	20 U	20 U	100 U	20 U	20 U						
MW-21	15-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-21	13-Nov-02	43	43	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-21	6-Feb-03	39.5	39.5	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-21	14-Nov-03	42.61	42.61	ug/l										20 U	20 U	20 U	40 U			20 U	20 U	20 U	20 U	100 U	20 U	20 U						
MW-21	11-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
MW-22	16-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.96 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-22	13-Nov-02	22.5	22.5	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-22	10-Feb-03	20	20	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
MW-22	11-Nov-03	14.74	14.74	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-23	16-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U	0.96 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
MW-23	13-Nov-02	44.5	44.5	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-23	10-Feb-03	47	47	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-23	11-Nov-03	42.24	42.24	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
MW-23	11-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-24	12-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
MW-24	13-Nov-02	43	43	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-24	10-Feb-03	45.43	45.43	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-24	11-Nov-03	43.61	43.61	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
MW-24	11-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-25	14-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
MW-25	14-Nov-02	45.5	45.5	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-25	14-Nov-02	0	0	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-25	11-Nov-03	41	41	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
MW-25	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-26	19-Sep-03	22.58	22.58	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-26	13-Nov-03	22	22	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
MW-27	19-Sep-03	40.13	40.13	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-27	13-Nov-03	37.1	37.1	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-28	12-Sep-03	36.77	36.77	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-28	11-Nov-03	36.84	36.84	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-29	12-Sep-03	23.03	23.03	ug/l		2 U							2 U	2 U	2 U	10 U	2 U			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				
MW-29	13-Nov-03	20.1	20.1	ug/l		0.2							0.2	0.2	0.2	1	0.2			0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2				
MW-30	12-Sep-03	43.99	43.99	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
MW-30	13-Nov-03	42.91	42.91	ug/l		10							10	10	10	50	10			10	10	10	10	10	10	10	10	10				
MW-30	12-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-31	19-Sep-03	22.81	22.81	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-31	11-Nov-03	19.71	19.71	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-32	18-Sep-03	24.25	24.25	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-32	11-Nov-03	21.15	21.15	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-32	12-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
MW-33	14-Apr-04	19	19	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-34	14-Apr-04	25.5	25.5	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-600	21-Nov-03	15	15	ug/l		500 UJ	500 UJ	1000 UJ				500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		1000 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	530 UJ	500 UJ	500 UJ	500 UJ			500 UJ	500 UJ
MW-600	29-Jan-04	40.6	40.6	ug/l		50 U	50 U	100 U	200 UJ			50 U	50 U	50 U	50 U	50 U	50 U		100 U	50 U	50 U	50 U	50 U	50 U	53 U	50 U	50 U	50 U			50 U	50 U
MW-601	21-Nov-03	15	15	ug/l		500 UJ	500 UJ	1000 UJ				500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		1000 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	530 UJ	500 UJ	500 UJ	500 UJ			500 UJ	500 UJ
MW-601	29-Jan-04	41.9	41.9	ug/l		50 U	50 U	100 U	200 UJ			50 U	50 U	50 U	50 U	50 U	50 U		100 U	50 U	50 U	50 U	50 U	50 U	53 U	50 U	50 U	50 U			50 U	50 U
MW-602	24-Nov-03	15	15	ug/l		50 UJ	50 UJ	100 UJ	200 UJ			50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		100 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	53 UJ	50 UJ	50 UJ	50 UJ			50 UJ	50 UJ
MW-602	1-Dec-03	35	35	ug/l		20 UJ	20 UJ	40 UJ	200 UJ			20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	100 UJ		40 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	21 UJ	20 UJ	20 UJ	20 UJ			20 UJ	20 UJ
MW-602	4-Dec-03	35	35	ug/l		5 UJ	5 UJ	10 U	50 U			5 UJ	5 UJ	5 U	5 U	5 U	25 U		10 U	5 U	5 UJ	5 U	5 U	5 U	5.3 U	5 U	5 U	5 U			5 UJ	5 UJ
MW-602	5-Dec-03	35	35	ug/l		10 UJ	10 UJ	20 U	100 U			10 UJ	10 UJ	10 U	10 U	10 U	50 U		20 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U	10 U			10 UJ	10 UJ
MW-602	5-Dec-03	35	35	ug/l		10 UJ	10 UJ	20 U	100 U			10 UJ	10 UJ	10 U	10 U	10 U	50 U		20 U	10 U	10 UJ	10 U	10 U	10 U	11 U	10 U	10 U	10 U			10 UJ	10 UJ
MW-602	29-Jan-04	38.7	38.7	ug/l		1 U	1 U	2 U	2.6 J			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U			1 U	1 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
MW-603	24-Nov-03	15	15	ug/l		50 UJ	50 UJ	100 UJ	200 UJ			50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		100 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	53 UJ	50 UJ	50 UJ	50 UJ			50 UJ	50 UJ
MW-603	29-Jan-04	38.4	38.4	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U			1 U	1 U
MW-604	25-Nov-03	15	15	ug/l		200 UJ	200 UJ	400 UJ	800 UJ			200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		400 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	210 UJ	200 UJ	200 UJ	200 UJ			200 UJ	200 UJ
MW-604	29-Jan-04	35.7	35.7	ug/l		50 U	50 U	100 U	200 UJ			50 U	50 U	50 U	50 U	50 U	50 U		100 U	50 U	50 U	50 U	50 U	50 U	53 U	50 U	50 U	50 U			50 U	50 U
MW-605	24-Nov-03	15	15	ug/l		200 UJ	200 UJ	400 UJ	800 UJ			200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		400 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	210 UJ	200 UJ	200 UJ	200 UJ			200 UJ	200 UJ
MW-605	2-Dec-03	32	32	ug/l		100 UJ	100 UJ	200 UJ	1000 UJ			100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	500 UJ		200 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	110 UJ	100 UJ	100 UJ	100 UJ			100 UJ	100 UJ
MW-605	3-Dec-03	32	32	ug/l		100 UJ	100 UJ	200 UJ	1000 UJ			100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	500 UJ		200 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	110 UJ	100 UJ	100 UJ	100 UJ			100 UJ	100 UJ
MW-605	3-Dec-03	32	32	ug/l		100 UJ	100 UJ	200 UJ	1000 UJ			100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	500 UJ		200 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	110 UJ	100 UJ	100 UJ	100 UJ			100 UJ	100 UJ
MW-606	6-Nov-03	35	35	ug/l		2.5 U	2.5 U	5 U	10 UJ			2.5 U	2.5 U	2.5 U	2.5 U	13 U	2.5 U		5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.7 U	2.5 U	2.5 U	2.5 U			2.5 U	2.5 U
MW-607	7-Nov-03	30	30	ug/l		5 U	5 U	10 U	26 UJ			5 U	5 U	5 U	5 U	25 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	5 U			5 U	5 U
MW-608	7-Nov-03	35	35	ug/l		13 U	13 U	25 U				13 U	13 U	13 U	13 U	63 U	13 U		25 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U			13 U	13 U
MW-R1	8-Jul-99	0	0	ug/l		1000 U	1000 U	2000 U	40000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U		2000 U	1000 U	1000 U	5000 U	1000 U	2000 U	1060 U	1000 U	1000 U	2000 U	1000 U		1000 U	1000 U
MW-R1	3-Feb-00	0	0	ug/l		1000 U	1000 U	2000 U	4000 U			1000 U	1000 U	2000 U	1000 U	1000 U	1000 U		2000 U	1000 U	1000 U	1000 U	1000 U	2000 U	1060 U	1000 U	1000 U	1000 U	2000 U		1000 U	2000 U
MW-R1	26-Aug-00	0	0	ug/l		100 U	100 U	500 U					100 UJ		100 U		100 U			100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 UJ				100 U
MW-R1	30-Jan-01	5.03	26.83	ug/l		1000 U	1000 U	5000 U	5000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			1000 U	1000 U
MW-R1	30-Oct-01	0	0	ug/l		500 U	500 U	2500 U					500 U	500 U	500 U	500 U	500 U			500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U				500 U
MW-R1	15-Aug-02	0	0	ug/l		400 U	400 U	4000 U					400 U	400 U	400 U	2000 U	400 U			400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U				400 U
MW-R1	15-Nov-02	25	25	ug/l		400 U	400 U	4000 U	10000 U			400 U	400 U	400 U	400 U	2000 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U			400 U	400 U
MW-R1	4-Feb-03	24	24	ug/l		400 U	400 U	4000 U	10000 U			400 U	400 U	400 U	400 U	2000 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U			400 U	400 U
MW-R1	12-Nov-03	23	23	ug/l		1000 U							1000 U	1000 U	1000 U	5000 U	1000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U				
MW-R2	8-Jul-99	0	0	ug/l		1000 U	1000 U	2000 U	40000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U		2000 U	1000 U	1000 U	5000 U	1000 U	2000 U	1060 U	1000 U	1000 U	2000 U	1000 U		1000 U	1000 U
MW-R2	3-Feb-00	0	0	ug/l		1000 U	1000 U	2000 U	4000 U			1000 U	1000 U	2000 U	1000 U	1000 U	1000 U		2000 U	1000 U	1000 U	1000 U	1000 U	2000 U	1060 U	1000 U	1000 U	1000 U	2000 U		1000 U	2000 U
MW-R2	26-Aug-00	0	0	ug/l		5 U	5 U	500 U	25 U				5 UJ		5 U		5 U		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ				5 U
MW-R2	30-Jan-01	5.03	26.48	ug/l		1000 U	1000 U	5000 U	5000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			1000 U	1000 U
MW-R2	31-Oct-01	0	0	ug/l		500 U	500 U	2500 U					500 U	500 U	500 U	500 U	500 U			500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U				500 U
MW-R2	15-Aug-02	0	0	ug/l		100 U	100 U	1000 U					100 U	100 U	100 U	500 U	100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U				100 U
MW-R2	14-Nov-02	44	44	ug/l		200 U	200 U	2000 U	5000 U			200 U	200 U	200 U	200 U	1000 U	200 U		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U			200 U	200 U
MW-R2	11-Feb-03	23.5	23.5	ug/l		200 U	200 U	2000 U	5000 U			200 U	200 U	200 U	200 U	1000 U	200 U		200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U			200 U	200 U
MW-R2	12-Nov-03	23	23	ug/l		1000 U							1000 U	1000 U	1000 U	5000 U	1000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U				
MW-R3	8-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	0.67 J	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
MW-R3	3-Feb-00	0	0	ug/l		50 U	50 U	100 U	200 U			50 U	50 U	100 U	50 U	50 U	50 U		100 U	50 U	50 U	50 U	50 U	100 U	53 U	50 U	50 U	50 U	100 U		50 U	100 U
MW-R3	25-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-R3	26-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U				1 UJ		1 U		1 U		1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ				1 U
MW-R3	30-Jan-01	4.72	23.94	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-R3	31-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-R3	15-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R3	14-Nov-02	22	22	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R3	14-Nov-02	22	22	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R3	6-Feb-03	21.1	21.1	ug/l		1 U	1 U	10 U	25 U			1 U	1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-R3	12-Nov-03	19	19	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
MW-R4	7-Jul-99	0	0	ug/l		500 U	500 U	1000 U	20000 U			500 U	500 U	500 U	500 U	500 U	500 U		1000 U	500 U	500 U	2500 U	500 U	1000 U	530 U	500 U	500 U	1000 U	500 U		500 U	500 U
MW-R4	4-Feb-00	0	0	ug/l		500 U	500 U	1000 U	2000 U			500 U	500 U	1000 U	500 U	500 U	500 U		1000 U	500 U	500 U	500 U	500 U	1000 U	530 U	500 U	500 U	500 U	1000 U		500 U	1000 U
MW-R4	25-Aug-00	0	0	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 UJ		10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ			10 U	10 U
MW-R4	25-Aug-00	0	0	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R4	30-Jan-01	5.03	26.83	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R4	31-Oct-01	0	0	ug/l		50 U	50 U	250 U					50 U	50 U	50 U	50 U	50 U			50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U				50 U
MW-R4	15-Aug-02	0	0	ug/l		40 U	40 U	400 U					40 U	40 U	40 U	200 U	40 U			40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U				40 U
MW-R4	14-Nov-02	43	43	ug/l		40 U	40 U	400 U	1000 U			40 U	40 U	40 U	40 U	200 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U			40 U	40 U
MW-R4	10-Feb-03	21	21	ug/l		40 U	40 U	400 U	1000 U			40 U	40 U	40 U	40 U	200 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U			40 U	40 U
MW-R4	12-Nov-03	21	21	ug/l		100 U							100 U	100 U	100 U	500 U	100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U				
MW-R5	8-Jul-99	0	0	ug/l		2000 U	2000 U	4000 U	80000 U			2000 U	2000 U	2000 U	2000 U	2000 U	2000 U		4000 U	2000 U	2000 U	10000 U	2000 U	4000 U	2120 U	2000 U	2000 U	4000 U	2000 U		2000 U	2000 U
MW-R5	3-Feb-00	0	0	ug/l		2000 U	2000 U	4000 U	8000 U			2000 U	2000 U	4000 U	2000 U	2000 U	2000 U		4000 U	2000 U	2000 U	2000 U	2000 U	4000 U	2120 U	2000 U	2000 U	2000 U	4000 U		2000 U	4000 U
MW-R5	26-Aug-00	0	0	ug/l		100 U	100 U	500 U	50 U				100 UJ		100 U		100 U			100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 UJ				100 U
MW-R5	30-Jan-01	4.51	28.51	ug/l		1000 U	1000 U	5000 U	5000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			1000 U	1000 U
MW-R5	30-Oct-01	0	0	ug/l		500 U	500 U	2500 U					500 U	500 U	500 U	500 U	500 U			500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U				500 U
MW-R5	15-Aug-02	0	0	ug/l		100 U	100 U	1000 U					100 U	100 U	100 U	500 U	100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U				100 U
MW-R5	14-Nov-02	45	45	ug/l		400 U	400 U	4000 U	10000 U			400 U	400 U	400 U	400 U	2000 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U			400 U	400 U
MW-R5	7-Feb-03	25.7	25.7	ug/l		400 U	400 U	4000 U	10000 U			400 U	400 U	400 U	400 U	2000 U	400 U		400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U	400 U			400 U	400 U
MW-R5	12-Nov-03	23	23	ug/l		1000 U							1000 U	1000 U	1000 U	5000 U	1000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U				
MW-R6	9-Jul-99	0	0	ug/l		2000 U	2000 U	4000 U	80000 U			2000 U	2000 U	2000 U	2000 U	2000 U	2000 U		4000 U	2000 U	2000 U	10000 U	2000 U	4000 U	2120 U	2000 U	2000 U	4000 U	2000 U		2000 U	2000 U
MW-R6	4-Feb-00	0	0	ug/l		2000 U	2000 U	4000 U	8000 U			2000 U	2000 U	4000 U	2000 U	2000 U	2000 U		4000 U	2000 U	2000 U	2000 U	2000 U	4000 U	2120 U	2000 U	2000 U	2000 U	4000 U		2000 U	4000 U
MW-R6	26-Aug-00	0	0	ug/l		100 U	100 U	500 U					100 UJ		100 U		100 U			100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 UJ				100 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
MW-R6	30-Jan-01	6	25.82	ug/l		1000 U	1000 U	5000 U	5000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U			1000 U	1000 U
MW-R6	30-Oct-01	0	0	ug/l		200 U	200 U	1000 U					200 U	200 U	200 U	200 U	200 U			200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U				200 U
MW-R6	20-Aug-02	0	0	ug/l		100 U	100 U	1000 U					100 U	100 U	100 U	500 U	100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U				100 U
MW-R6	14-Nov-02	45	45	ug/l		100 U	100 U	1000 U	2500 U			100 U	100 U	100 U	100 U	500 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R6	7-Feb-03	23	23	ug/l		100 U	100 U	1000 U	2500 U			100 U	100 U	100 U	100 U	500 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R6	7-Feb-03	23	23	ug/l		100 U	100 U	1000 U	2500 U			100 U	100 U	100 U	100 U	500 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R6	12-Nov-03	21	21	ug/l		1000 U							1000 U	1000 U	1000 U	5000 U	1000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U				
MW-R7	9-Jul-99	0	0	ug/l		1000 U	1000 U	2000 U	40000 U			1000 U	1000 U	1000 U	1000 U	1000 U	1000 U		2000 U	1000 U	1000 U	5000 U	1000 U	2000 U	1060 U	1000 U	1000 U	2000 U	1000 U		1000 U	1000 U
MW-R7	2-Feb-00	0	0	ug/l		1000 U	1000 U	2000 U	4000 U			1000 U	1000 U	2000 U	1000 U	1000 U	1000 U		2000 U	1000 U	1000 U	1000 U	1000 U	2000 U	1060 U	1000 U	1000 U	1000 U	2000 U		1000 U	2000 U
MW-R7	25-Aug-00	0	0	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 UJ		10 U	10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ			10 U	10 U
MW-R7	30-Jan-01	3.4	26.73	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R7	30-Oct-01	0	0	ug/l		50 U	50 U	250 U					50 U	50 U	50 U	50 U	50 U			50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U				50 U
MW-R7	20-Aug-02	0	0	ug/l		20 U	20 U	200 U					20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				20 U
MW-R7	14-Nov-02	42	42	ug/l		40 U	40 U	400 U	1000 U			40 U	40 U	40 U	40 U	200 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U			40 U	40 U
MW-R7	7-Feb-03	14	14	ug/l		40 U	40 U	400 U	1000 U			40 U	40 U	40 U	40 U	200 U	40 U		40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U	40 U			40 U	40 U
MW-R7	12-Nov-03	22	22	ug/l		200 U							200 U	200 U	200 U	1000 U	200 U			200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U				
MW-R7	12-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
MW-R8	29-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U			5 U	5 U		5 U	5 U	5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ			5 U	5 U
MW-R8	30-Jan-01	3.35	46.09	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-R8	30-Oct-01	0	0	ug/l		5 U	5 U	25 U	25 U				5 U	5 U	5 U	5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U				5 U
MW-R8	22-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
MW-R8	20-Nov-02	48.5	48.5	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-R8	20-Nov-02	37	37	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
MW-R8	20-Nov-02	26	26	ug/l		20 U	20 U	200 U	500 U			20 U	20 U	20 U	20 U	100 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U			20 U	20 U
MW-R8	20-Nov-02	15	15	ug/l		20 U	20 U	200 U	500 U			20 U	20 U	20 U	20 U	100 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U			20 U	20 U
MW-R8	7-Feb-03	43.1	43.1	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R8	12-Nov-03	45	45	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-R9	29-Aug-00	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 UJ		1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ			1 U	1 U
MW-R9	29-Aug-00	0	0	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R9	30-Jan-01	2.74	47.47	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-R9	30-Oct-01	0	0	ug/l		10 U	10 U	50 U	50 U				10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-R9	21-Aug-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
MW-R9	14-Nov-02	47	47	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-R9	7-Feb-03	39.65	39.65	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
MW-R9	12-Nov-03	44	44	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-R10	29-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U			5 U	5 U		5 U	5 U	5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ			5 U	5 U
MW-R10	30-Jan-01	4.53	46.74	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
MW-R10	30-Oct-01	0	0	ug/l		10 U	10 U	50 U	50 U				10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-R10	20-Aug-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
MW-R10	19-Nov-02	47	47	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
MW-R10	7-Feb-03	46.95	46.95	ug/l		20 U	20 U	200 U	500 U			20 U	20 U	20 U	20 U	100 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U			20 U	20 U
MW-R10	12-Nov-03	44	44	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
MW-R11	31-Jan-01	4.66	41.96	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
MW-R11	30-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
MW-R11	21-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	21-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	19-Nov-02	48.5	48.5	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	19-Nov-02	48.5	48.5	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	19-Nov-02	37	37	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	19-Nov-02	26	26	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	20-Nov-02	20.5	20.5	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	6-Feb-03	45	45	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
MW-R11	13-Nov-03	45	45	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-1	3-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
PW-1	7-Sep-00	0	0	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-1	31-Oct-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-1	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-1	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-1	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-2	3-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
PW-2	29-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-2	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
PW-2	3-Feb-99	0	0	ug/l		20 U	20 U	40 U	40 UJ			20 U	20 U	20 U	40 U	40 U	40 U		20 U	20 U	20 U	40 U	20 U	40 U	21 U	20 U	100 U		20 U		20 U	20 U
PW-2	6-Jul-99	0	0	ug/l		5 U	5 U	10 U	200 U			5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	25 U	5 U	10 U	5.3 U	5 U	5 U	10 U	5 U		5 U	5 U
PW-2	1-Feb-00	0	0	ug/l		10 U	10 U	20 U	40 U			10 U	10 U	20 U	10 U	10 U	10 U		20 U	10 U	10 U	10 U	10 U	20 U	11 U	10 U	10 U	10 U	20 U		10 U	20 U
PW-2	7-Sep-00	0	0	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-3	3-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
PW-3	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	10 U	20 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
PW-3	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-3	27-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-3	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-3	4-Feb-99	0	0	ug/l		10 U	10 U	20 U	20 UJ			10 U	10 U	10 U	20 U	20 U	20 U		10 U	10 U	10 U	20 U	10 U	20 U	11 U	10 U	50 U		10 U		10 U	10 U
PW-3	6-Jul-99	0	0	ug/l		100 U	100 U	200 U	4000 U			100 U	100 U	100 U	100 U	100 U	100 U		200 U	100 U	100 U	500 U	100 U	200 U	106 U	100 U	100 U	200 U	100 U		100 U	100 U
PW-3	2-Feb-00	0	0	ug/l		50 U	50 U	100 U	200 U			50 U	50 U	100 U	50 U	50 U	50 U		100 U	50 U	50 U	50 U	50 U	100 U	53 U	50 U	50 U	50 U	100 U		50 U	100 U
PW-3	2-Nov-01	0	0	ug/l		10 U	10 U	50 U	50 U				10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
PW-3	14-Nov-02	0	0	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
PW-4	4-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
PW-4	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	10 U	20 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
PW-4	29-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-4	29-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-4	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-4	28-Dec-98	0	0	ug/l		1 U	1 U	2 UJ	2 U				1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U
PW-4	28-Dec-98	0	0	ug/l		1 U	1 U	2 UJ	2 U				1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U
PW-4	28-Dec-98	0	0	ug/l		1 U	1 U	2 UJ	2 U				1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U
PW-4	6-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
PW-4	30-Jan-01	0	0	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
PW-4	8-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-4	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		3.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-4	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.37	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-4	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-4	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	6.2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-5	4-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
PW-5	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	10 U	20 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
PW-5	28-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-5	28-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-5	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-5	28-Dec-98	0	0	ug/l		1 U	1 U	2 UJ	2 U			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U		1 U	1 U
PW-5	26-Jan-99	0	0	ug/l		2 U	2 U	2 U	2 U			5 U	1 U	1 U	2 U	2 U	1 U	0.12 U	2 U	1 U	1 U	5 U	1 U	5 U	2.1 U	2 U	5 U	20 U	1 U		5 U	1 U
PW-5	9-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
PW-5	8-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-5	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-5	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-5	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-6	17-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 UJ	2 U	2 U	2 U		1 UJ	1 U	1 U	2 U	1 UJ	2 U	1.1 U	1 U	5 U	10 UJ	1 U		1 U	1 U
PW-6	17-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 UJ	2 U	2 U	2 U		1 UJ	1 U	1 U	2 U	1 UJ	2 U	1.1 U	1 U	5 U	10 UJ	1 U		1 U	1 U
PW-6	7-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
PW-6	9-Jul-99	0	0	ug/l		1 U	1 U	2 U	40 U			1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	1 U	2 U	1 U		1 U	1 U
PW-6	8-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-6	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-6	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-7	4-Mar-97	0	0	ug/l				5 U	5 U						3 U	3 U	3 U		3 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U		3 U				
PW-7	11-Apr-97			ug/l				50 U	50 U			30 U			30 U	30 U	30 U		30 U	30 U	30 U	30 U	30 U	30 U	30 U	30 U		30 U			30 U	
PW-7	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	10 U	20 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U		10 U	5 U	5 U	5 U	5 U	5 U	5.3 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
PW-7	29-Jan-98	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-7	28-Apr-98	0	0	ug/l		1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-7	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
PW-7	1-Nov-01	0	0	ug/l		10 U	10 U	50 U	50 U				10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
PW-7	7-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
PW-7	21-Aug-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
PW-7	14-Nov-02	53.6	53.6	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
PW-7	12-Nov-03	0	0	ug/l		1 U							1 U	1 U	1 U	5 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				
PW-8	4-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
PW-8	1-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-8	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
PW-8	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-9	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	2 U	4 U	5 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	2 U	1 U	1 U	1 U	1 U
PW-9	20-Jan-99	0	0	ug/l		100 U	100 U	200 U	200 U			100 U	100 U	100 U	200 U	200 U	200 U		100 U	100 U	100 U	200 U	100 U	200 U	106 U	100 U	500 U	4000 U	100 U		100 U	100 U
PW-9	14-Apr-99	0	0	ug/l		1 U	1 U	2 UJ	4 UJ			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 UJ	2 U	1.1 U	1 U	5 U	10 U	1 U		1 U	1 U
PW-9	2-Jun-99	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	1 U	2 U	2 U	1 U		2 U	1 U	1 U	5 U	1 U	2 U	1.1 U	1 U	5 U	2 U	1 U		1 U	1 U
PW-9	28-Jul-99	0	0	ug/l		500 U	500 U	1000 U	20000 U			500 U	500 U	500 U	500 U	500 U	500 U		1000 U	500 U	500 U	2500 U	500 U	1000 U	530 U	500 U	500 U	1000 U	500 U		500 U	500 U
PW-9	1-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-9	2-Feb-00	0	0	ug/l		200 U	200 U	400 U	800 U			200 U	200 U	400 U	200 U	200 U	200 U		400 U	200 U	200 U	200 U	200 U	400 U	212 U	200 U	200 U	200 U	400 U		200 U	400 U
PW-9	11-May-00	0	0	ug/l		200 U	200 U	400 U	800 U			200 U	200 U	400 U	200 U	200 U	200 U		400 U	200 U	200 U	200 U	200 U	400 U	212 U	200 U	200 U	200 U	400 U		200 U	400 U
PW-9	22-Jun-00	0	0	ug/l		200 U	200 U	400 U	800 U			200 U	200 U	400 U	200 U	200 U	200 U		400 U	200 U	200 U	200 U	200 U	400 U	212 U	200 U	200 U	200 U	400 U		200 U	400 U
PW-9	24-Aug-00	0	0	ug/l		500 U	500 U	1000 U	2000 U			500 U	500 U	1000 U	500 U	500 U	500 U		1000 U	500 U	500 U	500 U	500 U	1000 U	530 U	500 U	500 U	500 U	1000 U		500 U	1000 U
PW-9	12-Oct-00	0	0	ug/l		200 U	200 U	400 U	400 UJ			200 U	200 U	200 U	200 U	200 U	200 U		400 U	200 U	200 U	200 U	200 U	200 U	212 U	200 U	200 U	200 U	200 U		200 U	200 U
PW-9	30-Jan-01	0	0	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U
PW-9	1-Feb-01	0	0	ug/l		100 U	100 U	200 U	4000 UJ			100 U	100 U	100 U	100 U	100 U	100 U		200 U	100 U	100 U	100 U	100 U	100 UJ	53 U	100 U	100 U	100 UJ	100 U		100 U	100 U
PW-9	26-Apr-01	0	0	ug/l		100 U	100 U	200 U	400 UJ			100 U	100 U	200 U	100 U	100 U	100 U		200 U	100 U	100 U	100 U	100 U	200 U	106 U	100 U	100 U	100 U	200 U		100 U	200 U
PW-9	2-Nov-01	0	0	ug/l		20 U	20 U	100 U					20 U	20 U	20 U	20 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				20 U
PW-9	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-9	6-Aug-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
PW-9	19-Nov-02	0	0	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
PW-9	19-Nov-02	0	0	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
PW-9	12-Feb-03	0	0	ug/l		20 U	20 U	200 U	500 U			20 U	20 U	20 U	20 U	100 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U			20 U	20 U
PW-9	12-Feb-03	0	0	ug/l		20 U	20 U	200 U	500 U			20 U	20 U	20 U	20 U	100 U	20 U		20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U			20 U	20 U
PW-9	13-Nov-03	0	0	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
PW-14	7-Oct-97	0	0	ug/l		0.5 U	0.5 U						0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U			0.5 U	0.5 U
PW-16	17-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 UJ	2 U	2 U	2 U		1 UJ	1 U	1 U	2 U	0.18 J	2 U	1.1 U	1 U	5 U	10 UJ	1 U		1 U	1 U
PW-16	1-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-16	7-Sep-00	0	0	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-16	2-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-17	17-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 UJ	2 U	2 U	2 U		1 UJ	1 U	1 U	2 U	1 UJ	2 U	1.1 U	1 U	5 U	10 UJ	1 U		1 U	1 U
PW-17	1-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-17	7-Sep-00	0	0	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-17	6-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-19	4-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 UJ			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	0.19 J	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
PW-19	1-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-19	7-Sep-00	0	0	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-20	2-Feb-99	0	0	ug/l		1 U	1 U	2 U	2 U			1 U	1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U		1 U		1 U	1 U
PW-20	1-Feb-00	0	0	ug/l		1 U	1 U	2 U	4 U			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-20	7-Sep-00	0	0	ug/l		1 U	1 U	2 U	4 UJ			1 U	1 U	2 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	2 U	1.1 U	1 U	1 U	1 U	2 U		1 U	2 U
PW-20	31-Jan-01	4.55	41.39	ug/l		1 U	1 U	5 U	5 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
PW-21	10-Mar-99	0	0	ug/l		1 U	1 U	2 UJ	4 U			1 U	1 U	1 U	2 U	2 UJ	2 U	0.13 U	1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	10 U	1 U		1 U	1 U
PW-21	2-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-21	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-21	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-21	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-21	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-22	2-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-23	2-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-23	6-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-23	13-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-24	2-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-24	11-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-25	1-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-26	6-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-26	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-26	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-26	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-26	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-26	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-27	1-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-28	1-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-29	6-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-30	6-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
PW-31	7-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-32	6-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-32	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-32	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-32	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-32	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-32	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-33	5-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-33	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-34	5-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-34	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-34	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-34	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-34	11-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-34	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-35	5-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-35	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-36	16-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-36	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-36	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-37	7-Nov-01	0	0	ug/l		1 U	1 U	5 U	5 U				1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
PW-37	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-37	10-Jul-07	0	0	ug/l	1 UJ	1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
PW-38	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-38	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-38	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-38	12-Nov-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
PW-39	7-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-39	22-Aug-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
PW-39	11-Nov-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-1	1-Jun-00	0	0	ug/l		1 U	1 U	5 U	5 UJ			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
RS-1	21-Jun-00	0	0	ug/l																												
RS-1	22-Jun-00	0	0	ug/l		1 U	1 U	1 U	1 U				1 U		1 U		1 U		5 UJ	1 U	1 U	1 U	5 U	1 U		5 U	1 U	1 U				1 U
RS-1	9-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ				2 U
RS-1	9-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ				2 U
RS-1	9-Jul-02	0	0	ug/l		0.4 U	0.4 U	4 U	15			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U				0.4 U	0.4 U
RS-2	10-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-2	10-Jul-02	0	0	ug/l		1 U	1 U	10 U	25 U				1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
RS-2	10-Jul-02	0	0	ug/l		0.4 U	0.4 U	4 U	32			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
RS-3	10-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-3	11-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
RS-3	11-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
RS-4	29-Jun-00	0	0	ug/l		1 U	1 U	5 U				1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
RS-4	16-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-4	16-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	26			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.34	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-4	16-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	43			0.23	0.2 U	0.2 U	0.2 U	1 U	0.2 U		1	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-5	11-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-5	11-Jul-02	0	0	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
RS-5	11-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
RS-6	15-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-6	15-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
RS-6	15-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
RS-7	16-Jul-02	0	0	ug/l		20 U	20 U	200 U					20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				20 U
RS-7	16-Jul-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
RS-7	16-Jul-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
RS-8	24-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-8	24-Jun-02	0	0	ug/l		1 U	1 U	10 U	25 U				1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ				1 U
RS-8	25-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	7.2			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.39	0.2 U
RS-9	11-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-9	11-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
RS-9	12-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
RS-10	9-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	6.6			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
RS-10	9-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ				2 U
RS-10	9-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-10	9-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-11	12-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				2 U
RS-11	15-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
RS-11	15-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				4 U
RS-12	12-Jul-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
RS-12	12-Jul-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
RS-12	12-Jul-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				10 U
RS-13	10-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-13	11-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-13	11-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	18			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-14	9-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-14	10-Jul-02	0	0	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
RS-14	10-Jul-02	0	0	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
RS-15A	26-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-15A	26-Jun-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ				10 U
RS-15A	26-Jun-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ				10 U
RS-16	1-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	6.4			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.22	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-16	1-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-16	2-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-17	25-Jun-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ				10 U
RS-17	25-Jun-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ				10 U
RS-17A	25-Jun-02	0	0	ug/l		10 U	10 U	100 U					10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 UJ	10 U	10 U	10 U	10 UJ				10 U
RS-18	8-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-18	8-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-18	9-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-19	3-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-19	3-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	7.4			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-19A	8-Jul-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ				2 U
RS-20	2-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-20	2-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-20	2-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-20	2-Jul-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-21	26-Jun-02	0	0	ug/l		4 U	4 U	40 U					4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 UJ	4 U	4 U	4 U	4 UJ				4 U
RS-21	26-Jun-02	0	0	ug/l		2 U	2 U	20 U	50 U				2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 UJ	2 U	2 U	2 U	2 UJ				2 U
RS-22	27-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-22	27-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	16			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.32	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-23A	28-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	9.9			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-23A	28-Jun-02	0	0	ug/l		0.2 U	0.2 U	2 U	12			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.27	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 UJ			0.2 U	0.2 U
RS-24	17-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
RS-24	17-Jul-02	0	0	ug/l		1 U	1 U	10 U	25 U				1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
RS-24	17-Jul-02	0	0	ug/l		1 U	1 U	10 U	25 U				1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U				1 U
RS-30	4-Sep-03	18.5	0	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-30	4-Sep-03	18.5	0	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-30	4-Sep-03	31	26	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-30	4-Sep-03	42.5	0	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-30	4-Sep-03	0	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-31	3-Sep-03	18	18	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-31	3-Sep-03	31	31	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-31	3-Sep-03	45	45	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-33	5-Sep-03	18.5	18.5	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-33	5-Sep-03	31	31	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-33	5-Sep-03	43.5	43.5	ug/l		20 U							20 U	20 U	20 U	100 U	20 U			20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U				
RS-41	25-Aug-03	12	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-41	25-Aug-03	28.5	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-41	25-Aug-03	36.5	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-42	26-Aug-03	13.5	13.5	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-42	26-Aug-03	13.5	13.5	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-42	26-Aug-03	31	31	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-42	26-Aug-03	34.5	34.5	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-43	27-Aug-03	14	14	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	2-Nitro-propane	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene	Bromochloro-methane	Bromodi-chloromethane	Bromoform	Bromo-methane	Butylbenzyl-phthalate	Carbon disulfide	Carbon tetrachloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3 Dichloro-propene	Dibromo-chloromethane	Dibromo-methane	Dichlorodi-fluoromethane	Diethyl ether	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene
RS-43	27-Aug-03	23	23	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-43	27-Aug-03	35	35	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-46	13-Apr-04	22	22	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-46	13-Apr-04	28	28	ug/l		2 U							2 U	2 U	2 U	10 U	2 U			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				
RS-46	13-Apr-04	32.5	32.5	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
RS-46	13-Apr-04	40	40	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
RS-46	13-Apr-04	44.5	44.5	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
RS-47	17-Jun-04	16.5	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-47	17-Jun-04	29.5	0	ug/l		0.2 U							0.2 U	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.83	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-47	17-Jun-04	39	0	ug/l		0.2 U							0.2 U	0.2 U	0.4	1 U	0.2 U			0.2 U	0.2 U	0.2 U	4.7	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-48	16-Jun-04	16	0	ug/l		4 U							4 U	4 U	4 U	20 U	4 U			4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U				
RS-48	16-Jun-04	27.5	0	ug/l		2 U							2 U	2 U	2 U	10 U	2 U			2 U	2 U	2 U	2.7	2 U	2 U	2 U	2 U	2 U				
RS-48	16-Jun-04	40	0	ug/l		0.2 U							0.2 U	0.2 U	1.1	1 U	0.2 U			0.2 U	0.2 U	0.2 U	11	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				
RS-49	15-Jun-04	15	0	ug/l		2 U							2 U	2 U	2 U	10 U	2 U			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				
RS-49	15-Jun-04	27	0	ug/l		10 U							10 U	10 U	10 U	50 U	10 U			10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U				
RS-49	15-Jun-04	40	0	ug/l		2 U							2 U	2 U	2 U	10 U	2 U			2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U				
RS-5	11-Jul-02	0	0	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
SG2-8	20-Nov-02	18	21	ug/l		2 U	2 U	20 U	50 U			2 U	2 U	2 U	2 U	10 U	2 U		2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U			2 U	2 U
SG2-9	20-Nov-02	18	21	ug/l		4 U	4 U	40 U	100 U			4 U	4 U	4 U	4 U	20 U	4 U		4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U	4 U			4 U	4 U
SG1-12	20-Nov-02	17	20	ug/l		0.4 U	0.4 U	4 U	10 U			0.4 U	0.4 U	0.4 U	0.4 U	2 U	0.4 U		0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U			0.4 U	0.4 U
SG1-13	20-Nov-02	18	21	ug/l		1 U	1 U	10 U	25 U			1 U	1 U	1 U	1 U	5 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U			1 U	1 U
SG1-20	20-Nov-02	18	21	ug/l		0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U			0.2 U	0.2 U
SG-215	20-Nov-02	18	21	ug/l		10 U	10 U	100 U	250 U			10 U	10 U	10 U	10 U	50 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
SP-1	12-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-1	12-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-2	12-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-2	12-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-3	12-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-3	12-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-4	18-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-4	18-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-5	18-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-5	18-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-6	18-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1	1 U	1 U	1 U	1 U						
SP-6	18-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-7	18-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-7	18-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
SP-8	18-Aug-99	15		ug/l											1 U	1 U	1 U			1 U	1 U	9	1 U	1 U	1 U	1 U						
SP-8	18-Aug-99	40		ug/l											1 U	1 U	1 U			1 U	1 U	1 U	1 U	1 U	1 U	1 U						
T-1	16-Sep-98	0	0	ug/l		2 U	2 U	4 U	8 U				2 U	1 U	2 U	2 U	1 U		5 U	5 U	1 U	1 U	1 U	2 U	2.1 U	2 U	1 U	1 U	2 U			1 U
T-1	20-Jan-99	0	0	ug/l		1 U	1 U	2 U	2 U				1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U
T-2	22-Jul-98	0	0	ug/l	10 U	10 U	10 U	20 U	20 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U			10 U	10 U	10 U	10 U	10 U	10.6 U	10 U	10 U	10 U	10 U	2.1 J		10 U
T-2	16-Sep-98	0	0	ug/l		2 U	2 U	4 U	8 U				2 U	1 U	2 U	2 U	1 U		5 U	5 U	1 U	1 U	1 U	2 U	2.1 U	2 U	1 U	1 U	2 U			1 U
T-2	20-Jan-99	0	0	ug/l		1 U	1 U	2 U	2 U				1 U	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U
WELL 3	28-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U			5 U	5 U		5 U	5 U	5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ			5 U	5 U
WELL 3	30-Jan-01	0	0	ug/l		10 U	10 U	50 U	50 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U			10 U	10 U
WELL 9	29-Aug-00	0	0	ug/l		5 U	5 U	25 U	25 U			5 U	5 U		5 U	5 U	5 UJ		5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	5 U	5 U	5 UJ			5 U	5 U
WELL 9	29-Aug-00	0	0	ug/l		100 U	100 U	500 U	500 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U			100 U	100 U

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
AB-1	26-Jun-00	13	17.5	ug/l				2500 U		500 U			500 U	500 U		500 U	500 U	500 U		500 U	500 U	500 U		500 U	2500 U	500 U	1000 U	E+E 2000a
AB-1	26-Jun-00	25	35	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
AB-2	27-Jun-00	12	16	ug/l				2500 U		500 U			500 U	500 U		500 U	500 U	500 U		500 U	500 U	500 U		500 U	2500 U	500 U	1000 U	E+E 2000a
AB-2	30-Jun-00	0	0	ug/l				2500 UJ		500 U						500 U	500 U	500 U		500 U	500 U	500 U		500 U		500 U	1000 U	E+E 2000a
AB-3	28-Jun-00	16	20	ug/l				10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	E+E 2000a
AB-3	28-Jun-00	0	0	ug/l																								E+E 2000a
AB-3	30-Jun-00	0	0	ug/l				10 U		2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 UJ	2 U	4 U	E+E 2000a
AB-4	28-Jun-00	12	16	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
AB-4	28-Jun-00	0	0	ug/l																								E+E 2000a
AB-4	30-Jun-00	0	0	ug/l				500 UJ		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	E+E 2000a
AB-5	29-Jun-00	16	20	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
AB-5	29-Jun-00	44	48	ug/l				15 U		3 U			3 U	3 U		3 U	3 U	3 U		3 U	3 U	3 U		3 U	15 U	3 U	6 U	E+E 2000a
AB-5	29-Jun-00	0	0	ug/l																								E+E 2000a
AB-5	29-Jun-00	0	0	ug/l																								E+E 2000a
AB-5	3-Jul-00	0	0	ug/l				5 UJ		3 U				3 U		3 U	3 U	3 U		3 U	3 U	3 U		3 U	5 U	3 U	6 U	E+E 2000a
AB-6	29-Jun-00	12	16	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
AB-6	29-Jun-00	20	24	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
AB-6	29-Jun-00	0	0	ug/l																								E+E 2000a
AB-6	29-Jun-00	0	0	ug/l																								E+E 2000a
AB-6	3-Jul-00	0	0	ug/l				500 UJ		100 U				1 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	5 U	100 U	200 U	E+E 2000a
AB-7	1-Jul-00	0	0	ug/l																								E+E 2000a
AB-7	1-Jul-00	0	0	ug/l																								E+E 2000a
AB-8	28-Jun-00	0	0	ug/l				2500 UJ		500 U						500 U	500 U	500 U		500 U	500 U	500 U		500 U		500 U	1000 U	E+E 2000a
AB-8	29-Jun-00	12	16	ug/l				2500 U		500 U			500 U	500 U		500 U	500 U	500 U		500 U	500 U	500 U		500 U	2500 U	500 U	1000 U	E+E 2000a
AB-8	1-Jul-00	0	0	ug/l																								E+E 2000a
AB-8	1-Jul-00	0	0	ug/l																								E+E 2000a
AB-9	30-Jun-00	0	0	ug/l																								E+E 2000a
AB-9	30-Jun-00	0	0	ug/l																								E+E 2000a
AB-10	30-Jun-00	0	0	ug/l																								E+E 2000a
AB-10	30-Jun-00	0	0	ug/l																								E+E 2000a
AW2	27-Jun-00	0	0	ug/l																								E+E 2000a
AW2	27-Jun-00	0	0	ug/l																								E+E 2000a
B-01	31-Mar-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-01	31-Mar-98	35	0	ug/l				1 U								1 U										1 U	1 U	Ecology 1999a
B-02	31-Mar-98	20	0	ug/l				10 U								10 U										50 U	10 U	Ecology 1999a
B-02	31-Mar-98	35	0	ug/l				10 U								10 U										50 U	10 U	Ecology 1999a
B-02	27-Apr-98	0	0	ug/l				20 U								20 U										100 U	20 U	Ecology 1999a
B-02	27-Apr-98	0	0	ug/l				20 U								20 U										100 U	20 U	Ecology 1999a
B-02	27-Apr-98	0	0	ug/l				20 U								20 U										100 U	20 U	Ecology 1999a
B-02	27-Apr-98	0	0	ug/l				20 U								20 U										100 U	20 U	Ecology 1999a
B-03	31-Mar-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-03	31-Mar-98	30	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-04	31-Mar-98	15	17	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-05	1-Apr-98	28	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-05	1-Apr-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-05	1-Apr-98	28	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-06	1-Apr-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-06	1-Apr-98	35	0	ug/l				1 U								1 U										5 U	1.3	Ecology 1999a
B-07	1-Apr-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-07	1-Apr-98	30	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-08	1-Apr-98	18	0	ug/l				1 U								4.6										5 U	1 U	Ecology 1999a
B-08	1-Apr-98	35	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-11	2-Apr-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-11	2-Apr-98	32	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-13	2-Apr-98	20	0	ug/l				1 U								1 U										5 U	3.8	Ecology 1999a
B-13	2-Apr-98	31	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-14	2-Apr-98	20	0	ug/l				1 U								1 U										68	1 U	Ecology 1999a
B-14	2-Apr-98	34	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-15	2-Apr-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-15	2-Apr-98	35	0	ug/l				1 U								1.6										5 U	1.3	Ecology 1999a
B-16	2-Apr-98	20	0	ug/l				1 U								1 U										5 U	1 U	Ecology 1999a
B-16	2-Apr-98	34	0	ug/l				1 U								1 U										5 U	1.6	Ecology 1999a

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
B-17	2-Apr-98	19	0	ug/l				1 U												1.5						5 U	4	Ecology 1999a
B-17	2-Apr-98	34	0	ug/l				1 U												1 U						5 U	1 U	Ecology 1999a
B-18	2-Apr-98	15	0	ug/l				1 U												1 U						5 U	1 U	Ecology 1999a
B-19	2-Apr-98	20	0	ug/l				1 U												1 U						5 U	1 U	Ecology 1999a
B-20	27-Apr-98	11	13	ug/l				20 U												20 U						100 U	20 U	Ecology 1999a
B-23	27-Apr-98	10	12	ug/l				4 U												4 U						20 U	4 U	Ecology 1999a
B-24	27-Apr-98	13	15	ug/l				4 U												4 U						20 U	4 U	Ecology 1999a
B-25	27-Apr-98	13	15	ug/l				1 U												1 U						5 U	1 U	Ecology 1999a
B-26	27-Apr-98	13	15	ug/l				1 U												1 U						5 U	1 U	Ecology 1999a
B-27	27-Apr-98	13	15	ug/l				1 U												1 U						5 U	1 U	Ecology 1999a
CULVHD	28-Dec-98	0	0	ug/l				1 U		2 U				1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
Excavation	14-Sep-99	0	0	ug/l																3600	36					5 U	6900	GeoEngineers 2001
Excavation	22-Sep-99	0	0	ug/l																67	6.4					870	1 U	GeoEngineers 2001
GP-1	20-Jun-00	0	16	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
GP-1	20-Jun-00	0	0	ug/l																								E+E 2000a
GP-1	20-Jun-00	0	0	ug/l																								E+E 2000a
GP-2	20-Jun-00	0	16	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
GP-2	20-Jun-00	0	0	ug/l																								E+E 2000a
GP-3	20-Jun-00	0	0	ug/l																								E+E 2000a
GP-A3	26-Jun-00	25	30	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
GP-A4	26-Jun-00	25	30	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
GP-A4	27-Jun-00	0	0	ug/l																								E+E 2000a
GW1	22-Jun-00	0	0	ug/l				500 UJ		100 U						100 U	100 U	100 U		100 U		100 U		100 U		100 U	200 U	E+E 2000a
GW2	22-Jun-00	0	0	ug/l				5 UJ		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	6	1 U	2 U	E+E 2000a
GW3	27-Jun-00	0	0	ug/l																								E+E 2000a
GW5	26-Jun-00	0	0	ug/l																								E+E 2000a
GW5	26-Jun-00	0	0	ug/l																								E+E 2000a
MW-1	3-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-1	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
MW-1	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-1	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-1	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-1	2-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
MW-1	6-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-1	1-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	0.23 J	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
MW-1	25-Aug-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-1	31-Jan-01	3.9	44.94	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-1	31-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
MW-1	13-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-2	3-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-2	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
MW-2	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-2	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-2	22-Jul-98	0	0	ug/l	10 U	10 U	10 U	20 U		10 U	10 U		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	9.4 U	10 U	10 U		10 U	20 U	Ecology 1999b
MW-2	3-Feb-99	0	0	ug/l			40 U	20 U		40 U			20 U	20 U	20 U	20 U	20 U	20 U	40 U	20 U	20 U	38 U	100 U	20 U		20 U	40 U	Ecology 2000
MW-2	6-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-2	2-Feb-00	0	0	ug/l			40 U	40 U		20 U			20 U	20 U	20 U	40 U	20 U	40 U	20 U	20 U	40 U	19 U	20 U	40 U		20 U	40 U	Ecology 2001
MW-2	25-Aug-00	0	0	ug/l				25 U		5 U			5 U	5 U		5 U	5 U	5 U		5 U	5 U	5 U		5 U	25 U	5 U	10 U	E+E 2000a
MW-2	31-Jan-01	6.22	46.78	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-2	31-Oct-01	0	0	ug/l			5 U	25 U		5 U						5 U	5 U	5 U		5 U	5 U	5 U		5 U		5 U	10 U	E+E 2002
MW-2	13-Aug-02	0	0	ug/l			2 U	24 B		2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-2	12-Nov-02	44	44	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-2	5-Feb-03	43.9	43.9	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2004
MW-2	13-Nov-03	41	41	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-3	3-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-3	9-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
MW-3	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 UJ		1 U	2 U	Ecology 1999b
MW-3	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-3	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.051 J	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-3	3-Feb-99	0	0	ug/l			40 U	20 U		40 U			20 U	20 U	20 U	20 U	20 U	20 U	40 UJ	0.23 J	20 U	38 U	100 U	20 U		20 U	40 U	Ecology 2000
MW-3	6-Jul-99	0	0	ug/l			100 U	200 U		100 U			100 U	100 U	200 U	100 U	100 U	100 U	100 U	100 U	100 U	94 U	500 U	200 U		100 U	200 U	Ecology 2000

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-3	2-Feb-00	0	0	ug/l			200 U	200 U		100 U			100 U	100 U	100 U	200 U	100 U	200 U	100 U	100 U	200 U	94 U	100 U	200 U		100 U	200 U	Ecology 2001
MW-3	25-Aug-00	0	0	ug/l				25 U		5 U			5 U	5 U		5 U	5 U	5 U		5 U	5 U	5 U		5 U	25 U	5 U	10 U	E+E 2000a
MW-3	31-Jan-01	7.38	48.4	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-3	1-Nov-01	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	E+E 2002
MW-3	20-Aug-02	0	0	ug/l			4 U	20 U		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
MW-3	14-Nov-02	43	43	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
MW-3	6-Feb-03	45.5	45.5	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2004
MW-3	13-Nov-03	42.45	42.45	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-4	4-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-4	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	4.7 U	10 U	5 U		5 U	10 U	Ecology 1999b
MW-4	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-4	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-4	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-4	2-Feb-99	0	0	ug/l			40 U	20 U		40 U			20 U	20 U	20 U	20 U	20 U	20 U	40 U	20 U	20 U	38 U	100 U	20 U		20 U	40 U	Ecology 2000
MW-4	7-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-4	4-Feb-00	0	0	ug/l			100 U	100 U		50 U			50 U	50 U	50 U	100 U	50 U	100 U	50 U	50 U	100 U	47 U	50 U	100 U		50 U	100 U	Ecology 2001
MW-4	26-Aug-00	0	0	ug/l				25 U		5 U						5 U	5 U	5 U		5 U	5 U	5 U		5 U		5 U	10 U	E+E 2000a
MW-4	31-Jan-01	5.22	45.8	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-4	31-Oct-01	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	E+E 2002
MW-4	13-Aug-02	0	0	ug/l			4 U	44 B		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
MW-4	13-Nov-02	43	43	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-4	13-Nov-02	0	0	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
MW-4	11-Feb-03	43	43	ug/l			4 U	23		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2004
MW-4	11-Nov-03	41.45	41.45	ug/l				20 U													4 U	4 U		4 U		4 U		Farallon 2004
MW-4	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-5	8-May-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-5	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
MW-5	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-5	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-5	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-5	2-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
MW-5	7-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-5	4-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
MW-5	25-Aug-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-5	31-Jan-01	8.98	50.51	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-5	31-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
MW-5	13-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-5	13-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-5	13-Nov-02	45	45	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-5	6-Feb-03	47.5	47.5	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
MW-5	11-Nov-03	45.5	45.5	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-6	8-May-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-6	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
MW-6	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-6	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-6	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-6	3-Feb-99	0	0	ug/l			40 U	20 U		40 U			20 U	20 U	20 U	20 U	20 U	20 U	40 U	20 U	20 U	38 U	100 U	20 U		20 U	40 U	Ecology 2000
MW-6	6-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-6	2-Feb-00	0	0	ug/l			20 U	20 U		10 U			10 U	10 U	10 U	20 U	10 U	20 U	10 U	10 U	20 U	9.4 U	10 U	20 U		10 U	20 U	Ecology 2001
MW-6	26-Aug-00	0	0	ug/l				5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-6	31-Jan-01	7.01	46.87	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-6	31-Oct-01	0	0	ug/l			5 U	25 U		5 U						5 U	5 U	5 U		5 U	5 U	5 U		5 U		5 U	10 U	E+E 2002
MW-6	13-Aug-02	0	0	ug/l			1 U	14 B		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	Farallon 2003
MW-6	12-Nov-02	45	45	ug/l			1 U	5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	Farallon 2003
MW-6	5-Feb-03	44	44	ug/l			1 U	5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	Farallon 2004
MW-6	5-Feb-03	44	44	ug/l			1 U	5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	Farallon 2004
MW-6	13-Nov-03	39	39	ug/l				40 U													4 U	4 U		4 U		4 U		Farallon 2004
MW-7	8-May-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
MW-7	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
MW-7	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-7	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-7	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 -Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-7	2-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
MW-7	7-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-7	4-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
MW-7	26-Aug-00	0	0	ug/l				5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-7	31-Jan-01	3.76	44.12	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-7	31-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
MW-7	13-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-7	12-Nov-02	42	42	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-7	5-Feb-03	41.65	41.65	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
MW-7	13-Nov-03	39	39	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-8	8-May-97	0	0	ug/l				60 U												60 U	60 U	60 U		60 U		60 U	60 U	SAIC 1997
MW-8	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	4.7 U	10 U	5 U		5 U	10 U	Ecology 1999b
MW-8	27-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 UJ		1 U	2 U	Ecology 1999b
MW-8	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
MW-8	4-Feb-99	0	0	ug/l			200 U	100 U		200 U			100 U	100 U	100 U	100 U	100 U	100 U	200 UJ	100 U	100 U	188 U	500 U	100 U		100 U	200 U	Ecology 2000
MW-8	7-Jul-99	0	0	ug/l			100 U	200 U		100 U			100 U	100 U	200 U	100 U	100 U	100 U	100 U	100 U	100 U	94 U	500 U	200 U		100 U	200 U	Ecology 2000
MW-8	3-Feb-00	0	0	ug/l			200 U	200 U		100 U			100 U	100 U	100 U	200 U	100 U	200 U	100 U	100 U	200 U	94 U	100 U	200 U		100 U	200 U	Ecology 2001
MW-8	26-Aug-00	0	0	ug/l				50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	E+E 2000a
MW-8	31-Jan-01	0	0	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-8	31-Oct-01	0	0	ug/l			20 U	100 U		20 U						20 U	20 U	20 U		20 U	20 U	20 U		20 U		20 U	40 U	E+E 2002
MW-8	14-Aug-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003
MW-8	13-Nov-02	43.6	43.6	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
MW-8	6-Feb-03	42.9	42.9	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2004
MW-8	13-Nov-03	41.5	41.5	ug/l				200 U													20 U	20 U		20 U		20 U		Farallon 2004
MW-8 DIL	13-Feb-01	0	0	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2001
MW-9	28-Aug-00	0	0	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
MW-9	28-Aug-00	0	0	ug/l				5000 U		1000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	5000 U	1000 U	2000 U	E+E 2000a
MW-9	31-Jan-01	2.6	46.09	ug/l				5000 U		1000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	5000 U	1000 U	2000 U	E+E 2001
MW-9	31-Oct-01	0	0	ug/l			200 U	1000 U		200 U						200 U	200 U	200 U		200 U	200 U	200 U		200 U		200 U	400 U	E+E 2002
MW-9	11-Sep-02	0	0	ug/l			100 U	500 U		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	Farallon 2003
MW-9	15-Nov-02	47	47	ug/l			100 U	500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	Farallon 2003
MW-9	11-Feb-03	44.65	44.65	ug/l			100 U	500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	Farallon 2004
MW-9	13-Nov-03	42	42	ug/l				500 U													100 U	100 U		100 U		100 U		Farallon 2004
MW-10	28-Aug-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-10	31-Jan-01	3.64	45.41	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-10	31-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
MW-10	21-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-10	12-Nov-02	47	47	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-10	11-Feb-03	43	43	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
MW-10	13-Nov-03	40	40	ug/l				5 U													1 U	1 U		1 U		1 U		Farallon 2004
MW-11	2-Feb-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-11	13-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-12	3-Feb-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-13	3-Feb-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-14	3-Feb-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-14	14-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.32	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-14	13-Nov-02	46	46	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-14	6-Feb-03	45.48	45.48	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
MW-14	11-Nov-03	45.5	45.5	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-15	3-Feb-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-16	3-Feb-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-17	14-Aug-02	0	0	ug/l			2 U	10 U		2 U				2 U		2 U	2 U	2 U		2 U	2.5	2 U		2 U	10 U	230	4 U	Farallon 2003
MW-17	12-Nov-02	23	23	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	6	4 U		4 U	20 U	470	8 U	Farallon 2003
MW-17	5-Feb-03	22.05	22.05	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	7.2	2 U		2 U	10 U	480	4 U	Farallon 2004
MW-17	14-Nov-03	19.7	19.7	ug/l				20 U													4 U	4 U		4 U		318		Farallon 2004
MW-18	14-Aug-02	0	0	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2003
MW-18	14-Aug-02	0	0	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2003
MW-18	12-Nov-02	45.5	45.5	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2003
MW-18	12-Nov-02	45.5	45.5	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2003
MW-18	5-Feb-03	44.27	44.27	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2004
MW-18	14-Nov-03	45.35	45.35	ug/l				5 U													1 U	1 U		1 U		1 U		Farallon 2004
MW-19	12-Aug-02	0	0	ug/l			10 U	96 B		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-19	21-Aug-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003
MW-19	13-Nov-02	44.5	44.5	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
MW-19	6-Feb-03	47.35	47.35	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2004
MW-19	13-Nov-03	45	45	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-19	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-20	15-Aug-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003
MW-20	15-Aug-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003
MW-20	13-Nov-02	23	23	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
MW-20	6-Feb-03	24.93	24.93	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2004
MW-20	14-Nov-03	22.8	22.8	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
MW-21	15-Aug-02	0	0	ug/l			10 U	67		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003
MW-21	13-Nov-02	43	43	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
MW-21	6-Feb-03	39.5	39.5	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2004
MW-21	14-Nov-03	42.61	42.61	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
MW-21	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-22	16-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U		0.96 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-22	13-Nov-02	22.5	22.5	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-22	10-Feb-03	20	20	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2004
MW-22	11-Nov-03	14.74	14.74	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-23	16-Aug-02	0	0	ug/l			4 U	59		4 U		0.96 U				4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
MW-23	13-Nov-02	44.5	44.5	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
MW-23	10-Feb-03	47	47	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2004
MW-23	11-Nov-03	42.24	42.24	ug/l				20 U													4 U	4 U		4 U		4 U		Farallon 2004
MW-23	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-24	12-Aug-02	0	0	ug/l			4 U	39 B		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
MW-24	13-Nov-02	43	43	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
MW-24	10-Feb-03	45.43	45.43	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2004
MW-24	11-Nov-03	43.61	43.61	ug/l				20 U													4 U	4 U		4 U		4 U		Farallon 2004
MW-24	11-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-25	14-Aug-02	0	0	ug/l			4 U	20 U		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
MW-25	14-Nov-02	45.5	45.5	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-25	14-Nov-02	0	0	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
MW-25	11-Nov-03	41	41	ug/l				20 U													4 U	4 U		4 U		4 U		Farallon 2004
MW-25	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-26	19-Sep-03	22.58	22.58	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-26	13-Nov-03	22	22	ug/l				40 U													4 U	4 U		4 U		4 U		Farallon 2004
MW-27	19-Sep-03	40.13	40.13	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-27	13-Nov-03	37.1	37.1	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-28	12-Sep-03	36.77	36.77	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-28	11-Nov-03	36.84	36.84	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-29	12-Sep-03	23.03	23.03	ug/l				10 U													2 U	2 U		2 U		2 U		Farallon 2004
MW-29	13-Nov-03	20.1	20.1	ug/l				2													0.2	0.2		0.2		0.2		Farallon 2004
MW-30	12-Sep-03	43.99	43.99	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
MW-30	13-Nov-03	42.91	42.91	ug/l				100													10	10		10		10		Farallon 2004
MW-30	12-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-31	19-Sep-03	22.81	22.81	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-31	11-Nov-03	19.71	19.71	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-32	18-Sep-03	24.25	24.25	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-32	11-Nov-03	21.15	21.15	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-32	12-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-33	14-Apr-04	19	19	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-34	14-Apr-04	25.5	25.5	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-600	21-Nov-03	15	15	ug/l			500 UJ	500 UJ		500 UJ			500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		500 UJ	500 UJ	470 UJ		1000 UJ		500 UJ	1000 UJ	EECA August 2004
MW-600	29-Jan-04	40.6	40.6	ug/l			50 U	50 U		50 U			50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	47 U		100 U		50 U	100 U	EECA August 2004
MW-601	21-Nov-03	15	15	ug/l			500 UJ	500 UJ		500 UJ			500 UJ	500 UJ	500 UJ	500 UJ	500 UJ	500 UJ		500 UJ	500 UJ	470 UJ		1000 UJ		500 UJ	1000 UJ	EECA August 2004
MW-601	29-Jan-04	41.9	41.9	ug/l			50 U	50 U		50 U			50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	47 U		100 U		50 U	100 U	EECA August 2004
MW-602	24-Nov-03	15	15	ug/l			50 UJ	50 UJ		50 UJ			50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		50 UJ	50 UJ	47 UJ		100 UJ		50 UJ	100 UJ	EECA August 2004
MW-602	1-Dec-03	35	35	ug/l			20 UJ	20 UJ		20 UJ			20 UJ	20 UJ	20 UJ	20 UJ	20 UJ	20 UJ		20 UJ	20 UJ	19 UJ		20 UJ		100 UJ	40 UJ	EECA August 2004
MW-602	4-Dec-03	35	35	ug/l			5 U	5 U		5 UJ			5 UJ	5 UJ	5 U	5 UJ	5 UJ	5 UJ		5 UJ	5 U	4.7 U		5 UJ		25 U	10 UJ	EECA August 2004
MW-602	5-Dec-03	35	35	ug/l			10 U	10 U		10 UJ			10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ		10 UJ	10 U	9.4 U		10 UJ		50 U	20 UJ	EECA August 2004
MW-602	5-Dec-03	35	35	ug/l			10 U	10 U		10 UJ			10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 UJ		10 UJ	10 U	9.4 U		10 UJ		50 U	20 UJ	EECA August 2004
MW-602	29-Jan-04	38.7	38.7	ug/l			1 U	1 U		1 U			1 U	1 U	1 U	1 U	1 U	1 U		1 U	51.6 A	0.94 U		2 U		1 U	2 U	EECA August 2004

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 -Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-603	24-Nov-03	15	15	ug/l			50 UJ	50 UJ		50 UJ			50 UJ	50 UJ	50 UJ	50 UJ	50 UJ	50 UJ		50 UJ	50 UJ	47 UJ		100 UJ		50 UJ	100 UJ	EECA August 2004
MW-603	29-Jan-04	38.4	38.4	ug/l			1 U	1 U		1 U			1 U	1 U	1 U	1 U	1 U	1 U		1 U	1 U	0.94 U		2 U		1 U	2 U	EECA August 2004
MW-604	25-Nov-03	15	15	ug/l			200 UJ	200 UJ		200 UJ			200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		200 UJ	200 UJ	190 UJ		400 UJ		200 UJ	400 UJ	EECA August 2004
MW-604	29-Jan-04	35.7	35.7	ug/l			50 U	50 U		50 U			50 U	50 U	50 U	50 U	50 U	50 U		50 U	50 U	47 U		100 U		50 U	100 U	EECA August 2004
MW-605	24-Nov-03	15	15	ug/l			200 UJ	200 UJ		200 UJ			200 UJ	200 UJ	200 UJ	200 UJ	200 UJ	200 UJ		200 UJ	200 UJ	190 UJ		400 UJ		200 UJ	400 UJ	EECA August 2004
MW-605	2-Dec-03	32	32	ug/l			100 UJ	100 UJ		100 UJ			100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ		100 UJ	100 UJ	94 UJ		100 UJ		500 UJ	200 UJ	EECA August 2004
MW-605	3-Dec-03	32	32	ug/l			100 UJ	100 UJ		100 UJ			100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ		100 UJ	100 UJ	94 UJ		100 UJ		500 UJ	200 UJ	EECA August 2004
MW-605	3-Dec-03	32	32	ug/l			100 UJ	100 UJ		100 UJ			100 UJ	100 UJ	100 UJ	100 UJ	100 UJ	100 UJ		100 UJ	100 UJ	94 UJ		100 UJ		500 UJ	200 UJ	EECA August 2004
MW-606	6-Nov-03	35	35	ug/l			2.5 U	2.5 U		2.5 U			2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U		2.5 U	2.5 U	2.4 U		2.5 U		2.5 U	5 U	EECA August 2004
MW-607	7-Nov-03	30	30	ug/l			5 U	5 U		5 U			5 U	5 U	5 U	5 U	5 U	5 U		5 U	5 U	4.7 U		5 U		5 U	10 U	EECA August 2004
MW-608	7-Nov-03	35	35	ug/l			13 U	13 U		13 U			13 U	13 U	13 U	13 U	13 U	13 U		13 U	13 U	12 U		13 U		13 U	25 U	EECA August 2004
MW-R1	8-Jul-99	0	0	ug/l			1000 U	2000 U		1000 U			1000 U	1000 U	2000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	940 U	5000 U	2000 U		1000 U	2000 U	Ecology 2000
MW-R1	3-Feb-00	0	0	ug/l			2000 U	2000 U		1000 U			1000 U	1000 U	1000 U	2000 U	1000 U	2000 U	1000 U	1000 U	2000 U	940 U	1000 U	2000 U		1000 U	2000 U	Ecology 2001
MW-R1	26-Aug-00	0	0	ug/l				500 U		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	E+E 2000a
MW-R1	30-Jan-01	5.03	26.83	ug/l				5000 U		1000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	5000 U	1000 U	2000 U	E+E 2001
MW-R1	30-Oct-01	0	0	ug/l			500 U	2500 U		500 U						500 U	500 U	500 U		500 U	500 U	500 U		500 U		500 U	1000 U	E+E 2002
MW-R1	15-Aug-02	0	0	ug/l			400 U	5000		400 U						400 U	400 U	400 U		400 U	400 U	400 U		400 U		400 U	800 U	Farallon 2003
MW-R1	15-Nov-02	25	25	ug/l			400 U	2000 U		400 U			400 U	400 U		400 U	400 U	400 U		400 U	400 U	400 U		400 U	2000 U	400 U	800 U	Farallon 2003
MW-R1	4-Feb-03	24	24	ug/l			400 U	2000 U		400 U			400 U	400 U		400 U	400 U	400 U		400 U	400 U	400 U		400 U	2000 U	400 U	800 U	Farallon 2004
MW-R1	12-Nov-03	23	23	ug/l				10000 U													1000 U	1000 U		1000 U		1000 U		Farallon 2004
MW-R2	8-Jul-99	0	0	ug/l			1000 U	2000 U		1000 U			1000 U	1000 U	2000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	940 U	5000 U	2000 U		1000 U	2000 U	Ecology 2000
MW-R2	3-Feb-00	0	0	ug/l			2000 U	2000 U		1000 U			1000 U	1000 U	1000 U	2000 U	1000 U	2000 U	1000 U	1000 U	2000 U	940 U	1000 U	2000 U		1000 U	2000 U	Ecology 2001
MW-R2	26-Aug-00	0	0	ug/l				500 U		5 U						5 U	5 U	5 U		5 U	5 U	5 U		5 U		5 U	200 U	E+E 2000a
MW-R2	30-Jan-01	5.03	26.48	ug/l				5000 U		1000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	5000 U	1000 U	2000 U	E+E 2001
MW-R2	31-Oct-01	0	0	ug/l			500 U	2500 U		500 U						500 U	500 U	500 U		500 U	500 U	500 U		500 U		500 U	1000 U	E+E 2002
MW-R2	15-Aug-02	0	0	ug/l			100 U	1100		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	Farallon 2003
MW-R2	14-Nov-02	44	44	ug/l			200 U	1000 U		200 U			200 U	200 U		200 U	200 U	200 U		200 U	200 U	200 U		200 U	1000 U	200 U	400 U	Farallon 2003
MW-R2	11-Feb-03	23.5	23.5	ug/l			200 U	1000 U		200 U			200 U	200 U		200 U	200 U	200 U		200 U	200 U	200 U		200 U	1000 U	200 U	400 U	Farallon 2004
MW-R2	12-Nov-03	23	23	ug/l				10000 U													1000 U	1000 U		1000 U		1000 U		Farallon 2004
MW-R3	8-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
MW-R3	3-Feb-00	0	0	ug/l			100 U	100 U		50 U			50 U	50 U	50 U	100 U	50 U	100 U	50 U	50 U	100 U	47 U	50 U	100 U		50 U	100 U	Ecology 2001
MW-R3	25-Aug-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-R3	26-Aug-00	0	0	ug/l				5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-R3	30-Jan-01	4.72	23.94	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-R3	31-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
MW-R3	15-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R3	14-Nov-02	22	22	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R3	14-Nov-02	22	22	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R3	6-Feb-03	21.1	21.1	ug/l			1 U	5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	Farallon 2004
MW-R3	12-Nov-03	19	19	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
MW-R4	7-Jul-99	0	0	ug/l			500 U	1000 U		500 U			500 U	500 U	1000 U	500 U	500 U	500 U	500 U	500 U	500 U	470 U	2500 U	1000 U		500 U	1000 U	Ecology 2000
MW-R4	4-Feb-00	0	0	ug/l			1000 U	1000 U		500 U			500 U	500 U	500 U	1000 U	500 U	1000 U	500 U	500 U	1000 U	470 U	500 U	1000 U		500 U	1000 U	Ecology 2001
MW-R4	25-Aug-00	0	0	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2000a
MW-R4	25-Aug-00	0	0	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
MW-R4	30-Jan-01	5.03	26.83	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2001
MW-R4	31-Oct-01	0	0	ug/l			50 U	250 U		50 U						50 U	50 U	50 U		50 U	50 U	50 U		50 U		50 U	100 U	E+E 2002
MW-R4	15-Aug-02	0	0	ug/l			40 U	360		40 U						40 U	40 U	40 U		40 U	40 U	40 U		40 U		40 U	80 U	Farallon 2003
MW-R4	14-Nov-02	43	43	ug/l			40 U	200 U		40 U			40 U	40 U		40 U	40 U	40 U		40 U	40 U	40 U		40 U	200 U	40 U	80 U	Farallon 2003
MW-R4	10-Feb-03	21	21	ug/l			40 U	200 U		40 U			40 U	40 U		40 U	40 U	40 U		40 U	40 U	40 U		40 U	200 U	40 U	80 U	Farallon 2004
MW-R4	12-Nov-03	21	21	ug/l				1000 U													100 U	100 U		100 U		100 U		Farallon 2004
MW-R5	8-Jul-99	0	0	ug/l			2000 U	4000 U		2000 U			2000 U	2000 U	4000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	1880 U	10000 U	4000 U		2000 U	4000 U	Ecology 2000
MW-R5	3-Feb-00	0	0	ug/l			4000 U	4000 U		2000 U			2000 U	2000 U	2000 U	4000 U	2000 U	4000 U	2000 U	2000 U	4000 U	1880 U	2000 U	4000 U		2000 U	4000 U	Ecology 2001
MW-R5	26-Aug-00	0	0	ug/l				500 U		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	E+E 2000a
MW-R5	30-Jan-01	4.51	28.51	ug/l				5000 U		1000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	5000 U	1000 U	2000 U	E+E 2001
MW-R5	30-Oct-01	0	0	ug/l			500 U	2500 U		500 U						500 U	500 U	500 U		500 U	500 U	500 U		500 U		500 U	1000 U	E+E 2002
MW-R5	15-Aug-02	0	0	ug/l			100 U	830		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	Farallon 2003
MW-R5	14-Nov-02	45	45	ug/l			400 U	2000 U		400 U			400 U	400 U		400 U	400 U	400 U		400 U	400 U	400 U		400 U	2000 U	400 U	800 U	Farallon 2003
MW-R5	7-Feb-03	25.7	25.7	ug/l			400 U	2000 U		400 U			400 U	400 U		400 U	400 U	400 U		400 U	400 U	400 U		400 U	2000 U	400 U	800 U	Farallon 2004
MW-R5	12-Nov-03	23	23	ug/l				10000 U													1000 U	1000 U		1000 U		1000 U		Farallon 2004
MW-R6	9-Jul-99	0	0	ug/l			2000 U	4000 U		2000 U			2000 U	2000 U	4000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	1880 U	10000 U	4000 U		2000 U	4000 U	Ecology 2000
MW-R6	4-Feb-00	0	0	ug/l			4000 U	4000 U		2000 U			2000 U	2000 U	2000 U	4000 U	2000 U	4000 U	2000 U	2000 U	4000 U	1880 U	2000 U	4000 U		2000 U	4000 U	Ecology 2001
MW-R6	26-Aug-00	0	0	ug/l				500 U		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	E+E 2000a

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
MW-R6	30-Jan-01	6	25.82	ug/l				5000 U		1000 U			1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	1000 U	1000 U		1000 U	5000 U	1000 U	2000 U	E+E 2001
MW-R6	30-Oct-01	0	0	ug/l			200 U	1000 U		200 U						200 U	200 U	200 U		200 U	200 U	200 U		200 U		200 U	400 U	E+E 2002
MW-R6	20-Aug-02	0	0	ug/l			100 U	510		100 U						100 U	100 U	100 U		100 U	100 U	100 U		100 U		100 U	200 U	Farallon 2003
MW-R6	14-Nov-02	45	45	ug/l			100 U	500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	Farallon 2003
MW-R6	7-Feb-03	23	23	ug/l			100 U	600 B		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	Farallon 2004
MW-R6	7-Feb-03	23	23	ug/l			100 U	730 B		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	Farallon 2004
MW-R6	12-Nov-03	21	21	ug/l				10000 U													1000 U	1000 U		1000 U		1000 U		Farallon 2004
MW-R7	9-Jul-99	0	0	ug/l			1000 U	2000 U		1000 U			1000 U	1000 U	2000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	940 U	5000 U	2000 U		1000 U	2000 U	Ecology 2000
MW-R7	2-Feb-00	0	0	ug/l			2000 U	2000 U		1000 U			1000 U	1000 U	1000 U	2000 U	1000 U	2000 U	1000 U	1000 U	2000 U	940 U	1000 U	2000 U		1000 U	2000 U	Ecology 2001
MW-R7	25-Aug-00	0	0	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2000a
MW-R7	30-Jan-01	3.4	26.73	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2001
MW-R7	30-Oct-01	0	0	ug/l			50 U	250 U		50 U						50 U	50 U	50 U		50 U	50 U	50 U		50 U		50 U	100 U	E+E 2002
MW-R7	20-Aug-02	0	0	ug/l			20 U	100 U		20 U						20 U	20 U	20 U		20 U	20 U	20 U		20 U		20 U	40 U	Farallon 2003
MW-R7	14-Nov-02	42	42	ug/l			40 U	200 U		40 U			40 U	40 U		40 U	40 U	40 U		40 U	40 U	40 U		40 U	200 U	40 U	80 U	Farallon 2003
MW-R7	7-Feb-03	14	14	ug/l			40 U	200 U		40 U			40 U	40 U		40 U	40 U	40 U		40 U	40 U	40 U		40 U	200 U	40 U	80 U	Farallon 2004
MW-R7	12-Nov-03	22	22	ug/l				2000 U													200 U	200 U		200 U		200 U		Farallon 2004
MW-R7	12-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
MW-R8	29-Aug-00	0	0	ug/l				25 U		5 U			5 U	5 U		5 U	5 U	5 U		5 U	5 U	5 U		5 U	25 U	5 U	10 U	E+E 2000a
MW-R8	30-Jan-01	3.35	46.09	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-R8	30-Oct-01	0	0	ug/l			5 U	25 U		5 U						5 U	5 U	5 U		5 U	5 U	5 U		5 U		5 U	10 U	E+E 2002
MW-R8	22-Aug-02	0	0	ug/l			4 U	31		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
MW-R8	20-Nov-02	48.5	48.5	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-R8	20-Nov-02	37	37	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
MW-R8	20-Nov-02	26	26	ug/l			20 U	100 U		20 U			20 U	20 U		20 U	20 U	20 U		20 U	20 U	20 U		20 U	100 U	20 U	40 U	Farallon 2003
MW-R8	20-Nov-02	15	15	ug/l			20 U	100 U		20 U			20 U	20 U		20 U	20 U	20 U		20 U	20 U	20 U		20 U	100 U	20 U	40 U	Farallon 2003
MW-R8	7-Feb-03	43.1	43.1	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
MW-R8	12-Nov-03	45	45	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-R9	29-Aug-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
MW-R9	29-Aug-00	0	0	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a
MW-R9	30-Jan-01	2.74	47.47	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
MW-R9	30-Oct-01	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		11	10 U	10 U		10 U		10 U	20 U	E+E 2002
MW-R9	21-Aug-02	0	0	ug/l			2 U	10 U		2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-R9	14-Nov-02	47	47	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
MW-R9	7-Feb-03	39.65	39.65	ug/l			2 U	12 B		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2004
MW-R9	12-Nov-03	44	44	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-R10	29-Aug-00	0	0	ug/l				25 U		5 U			5 U	5 U		5 U	5 U	5 U		5 U	5 U	5 U		5 U	25 U	5 U	10 U	E+E 2000a
MW-R10	30-Jan-01	4.53	46.74	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2001
MW-R10	30-Oct-01	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	E+E 2002
MW-R10	20-Aug-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	Farallon 2003
MW-R10	19-Nov-02	47	47	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
MW-R10	7-Feb-03	46.95	46.95	ug/l			20 U	120 B		20 U			20 U	20 U		20 U	20 U	20 U		20 U	20 U	20 U		20 U	100 U	20 U	40 U	Farallon 2004
MW-R10	12-Nov-03	44	44	ug/l				100 U													10 U	10 U		10 U		10 U		Farallon 2004
MW-R11	31-Jan-01	4.66	41.96	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
MW-R11	30-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
MW-R11	21-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	21-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	19-Nov-02	48.5	48.5	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	19-Nov-02	48.5	48.5	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	19-Nov-02	37	37	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	19-Nov-02	26	26	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	20-Nov-02	20.5	20.5	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
MW-R11	6-Feb-03	45	45	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
MW-R11	13-Nov-03	45	45	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-1	3-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-1	7-Sep-00	0	0	ug/l			2 U	1 U		1 U			1 U	1 U	1 UJ	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-1	31-Oct-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-1	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-1	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-1	12-Nov-03	0	0	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-2	3-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
PW-2	29-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-2	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
PW-2	3-Feb-99	0	0	ug/l			40 U	20 U		40 U			20 U	20 U	20 U	20 U	20 U	20 U	40 U	20 U	20 U	38 U	100 U	20 U		20 U	40 U	Ecology 2000
PW-2	6-Jul-99	0	0	ug/l			5 U	10 U		5 U			5 U	5 U	10 U	5 U	5 U	5 U	5 U	5 U	5 U	4.7 U	25 U	10 U		5 U	10 U	Ecology 2000
PW-2	1-Feb-00	0	0	ug/l			20 U	20 U		10 U			10 U	10 U	10 U	20 U	10 U	20 U	10 U	10 U	20 U	9.4 U	10 U	20 U		10 U	20 U	Ecology 2001
PW-2	7-Sep-00	0	0	ug/l			2 U	1 U		1 U			1 U	1 U	1 UJ	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-3	3-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
PW-3	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	4.7 U	10 U	5 U		5 U	10 U	Ecology 1999b
PW-3	26-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-3	27-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-3	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-3	4-Feb-99	0	0	ug/l			20 U	10 U		20 U			10 U	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U	19 U	50 U	10 U		10 U	20 U	Ecology 2000
PW-3	6-Jul-99	0	0	ug/l			100 U	200 U		100 U			100 U	100 U	200 U	100 U	100 U	100 U	100 U	100 U	100 U	94 U	500 U	200 U		100 U	200 U	Ecology 2000
PW-3	2-Feb-00	0	0	ug/l			100 U	100 U		50 U			50 U	50 U	50 U	100 U	50 U	100 U	50 U	50 U	100 U	47 U	50 U	100 U		50 U	100 U	Ecology 2001
PW-3	2-Nov-01	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	E+E 2002
PW-3	14-Nov-02	0	0	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
PW-4	4-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
PW-4	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	4.7 U	10 U	5 U		5 U	10 U	Ecology 1999b
PW-4	29-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-4	29-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-4	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-4	28-Dec-98	0	0	ug/l				1 U		2 U				1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
PW-4	28-Dec-98	0	0	ug/l				1 U		2 U				1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
PW-4	28-Dec-98	0	0	ug/l				1 U		2 U				1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
PW-4	6-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
PW-4	30-Jan-01	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
PW-4	8-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-4	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.32	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-4	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-4	12-Nov-03	0	0	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.38		Farallon 2004
PW-4	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-5	4-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U			3 U		3 U	3 U	SAIC 1997
PW-5	9-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	4.7 U	10 U	5 U		5 U	10 U	Ecology 1999b
PW-5	28-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-5	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-5	22-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-5	28-Dec-98	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
PW-5	26-Jan-99	0	0	ug/l			2 U	1 U		5 U		0.12 U	1 U	1 U	1 U	1 U	2 U	2 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-5	9-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
PW-5	8-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	3 U		1 U	5 U	1 U	2 U	E+E 2002
PW-5	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-5	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-5	12-Nov-03	0	0	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-6	17-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2.3 J	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-6	17-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 UJ	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-6	7-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
PW-6	9-Jul-99	0	0	ug/l			1 U	2 U		1 U			1 U	1 U	2 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	5 U	2 U		1 U	2 U	Ecology 2000
PW-6	8-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-6	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-6	12-Nov-03	0	0	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-7	4-Mar-97	0	0	ug/l				3 U						3 U						3 U	3 U	3 U		3 U		3 U	3 U	SAIC 1997
PW-7	11-Apr-97			ug/l				12 J	30 U					30 U			30 U			30 U	30 U	30 U		30 U		30 U		SAIC 1997
PW-7	10-Oct-97	0	0	ug/l	5 U	5 U	5 U	5 U		5 U	5 U		5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U	5 U	4.7 U	10 U	5 U		5 U	10 U	Ecology 1999b
PW-7	29-Jan-98	0	0	ug/l	1 U	1 U	1 U	1 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-7	28-Apr-98	0	0	ug/l	1 U	1 U	1 U	2 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-7	23-Jul-98	0	0	ug/l	1 U	1 U	1 U	2 UJ		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	0.21 J	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
PW-7	1-Nov-01	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U	20 U	E+E 2002
PW-7	7-Aug-02	0	0	ug/l			4 U	26		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
PW-7	21-Aug-02	0	0	ug/l			2 U	14		2 U				2 U		2 U	2 U	2 U		2 U	5.6	2 U		2 U	10 U	2 U	4 U	Farallon 2003
PW-7	14-Nov-02	53.6	53.6	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	6	2 U		2 U	10 U	2 U	4 U	Farallon 2003
PW-7	12-Nov-03	0	0	ug/l				5 U													31	1 U		1 U		1 U		Farallon 2004
PW-8	4-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-8	1-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-8	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
PW-8	12-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-9	8-Oct-97	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	5 U	1 U	1 U	0.94 U	2 U	1 U		1 U	2 U	Ecology 1999b
PW-9	20-Jan-99	0	0	ug/l			200 U	100 U		200 U			100 U	100 U	100 U	100 U	100 U	100 U	200 U	100 U	100 U	188 U	500 U	100 U		100 U	200 U	Ecology 2000
PW-9	14-Apr-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 UJ	5 U	1 U		1 UJ	2 U	Ecology 2001
PW-9	2-Jun-99	0	0	ug/l			1 U	2 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 J	2 U	Ecology 2001
PW-9	28-Jul-99	0	0	ug/l			500 U	1000 U		500 U			500 U	500 U	1000 U	500 U	500 U	500 U	500 U	500 U	500 U	470 U	2500 U	1000 U		500 U	1000 U	Ecology 2000
PW-9	1-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-9	2-Feb-00	0	0	ug/l			400 U	400 U		200 U			200 U	200 U	200 U	400 U	200 U	400 U	200 U	200 U	400 U	188 U	200 U	400 U		200 U	400 U	Ecology 2001
PW-9	11-May-00	0	0	ug/l			400 U	400 U		200 U			200 U	200 U	200 U	400 U	200 U	400 U	200 U	200 U	400 U	188 U	200 U	400 U		200 U	400 U	Ecology 2001
PW-9	22-Jun-00	0	0	ug/l			400 U	400 U		200 U			200 U	200 U	200 U	400 U	200 U	400 U	200 U	200 U	400 U	188 U	200 U	400 U		200 U	400 U	Ecology 2001
PW-9	24-Aug-00	0	0	ug/l			1000 U	1000 U		500 U			500 U	500 U	500 U	1000 U	500 U	1000 U	500 U	500 U	1000 U	470 U	500 U	1000 U		500 U	1000 U	Ecology 2001
PW-9	12-Oct-00	0	0	ug/l			200 U	200 U		200 U			200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	188 U	200 U	200 UJ		200 U	400 U	Ecology 2001
PW-9	30-Jan-01	0	0	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2001
PW-9	1-Feb-01	0	0	ug/l			100 U	100 U		100 U			100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	47 U	100 U	100 U		100 U	200 U	Ecology 2001
PW-9	26-Apr-01	0	0	ug/l			200 U	200 U		100 U			100 U	100 U	100 U	200 U	100 U	200 U	100 U	100 U	200 U	94 U	100 U	200 UJ		100 U	200 U	Ecology 2001
PW-9	2-Nov-01	0	0	ug/l			20 U	100 U		20 U						20 U	20 U	20 U		20 U	20 U	20 U		20 U		20 U	40 U	E+E 2002
PW-9	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.24	0.4 U	Farallon 2003
PW-9	6-Aug-02	0	0	ug/l			4 U	20 U		4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U	8 U	Farallon 2003
PW-9	19-Nov-02	0	0	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
PW-9	19-Nov-02	0	0	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
PW-9	12-Feb-03	0	0	ug/l			20 U	100 U		20 U			20 U	20 U		20 U	20 U	20 U		20 U	20 U	20 U		20 U	100 U	20 U	40 U	Farallon 2004
PW-9	12-Feb-03	0	0	ug/l			20 U	100 U		20 U			20 U	20 U		20 U	20 U	20 U		20 U	20 U	20 U		20 U	100 U	20 U	40 U	Farallon 2004
PW-9	13-Nov-03	0	0	ug/l				200 U													20 U	20 U		20 U		20 U		Farallon 2004
PW-14	7-Oct-97	0	0	ug/l				0.5 U		0.5 U			0.5 U	0.5 U		0.5 U	0.5 U	0.5 U		0.5 U	0.5 U	0.5 U				0.5 U	0.5 U	Ecology 2001
PW-16	17-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 UJ	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-16	1-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-16	7-Sep-00	0	0	ug/l			2 U	1 U		1 U			1 U	1 U	1 UJ	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-16	2-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-17	17-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 UJ	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-17	1-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-17	7-Sep-00	0	0	ug/l			1 U	1 U		1 U			1 U	1 U	1 UJ	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-17	6-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-19	4-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-19	1-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-19	7-Sep-00	0	0	ug/l			2 U	1 U		1 U			1 U	1 U	1 UJ	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-20	2-Feb-99	0	0	ug/l			2 U	1 U		2 U			1 U	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2000
PW-20	1-Feb-00	0	0	ug/l			2 U	2 U		1 U			1 U	1 U	1 U	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-20	7-Sep-00	0	0	ug/l			2 U	1 U		1 U			1 U	1 U	1 UJ	2 U	1 U	2 U	1 U	1 U	2 U	0.94 U	1 U	2 U		1 U	2 U	Ecology 2001
PW-20	31-Jan-01	4.55	41.39	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2001
PW-21	10-Mar-99	0	0	ug/l			2 U	1 U		2 U		0.13 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1.7 J	1 U	1 U	1.9 U	5 UJ	1 U		1 U	2 U	Ecology 2001
PW-21	2-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-21	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-21	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.38		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-21	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-21	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	41	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-22	2-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-23	2-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-23	6-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-23	13-Nov-03	0	0	ug/l				2 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-24	2-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-24	11-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-25	1-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-26	6-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-26	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-26	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-26	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-26	12-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-26	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-27	1-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-28	1-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-29	6-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-30	6-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 -Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
PW-31	7-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-32	6-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-32	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-32	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-32	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-32	12-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-32	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-33	5-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-33	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-34	5-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-34	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-34	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-34	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-34	11-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-34	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-35	5-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-35	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-36	16-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-36	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-36	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-37	7-Nov-01	0	0	ug/l			1 U	5 U		1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2002
PW-37	12-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-37	10-Jul-07	0	0	ug/l	1 U	1 U	1 U	1 U		1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
PW-38	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-38	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-38	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-38	12-Nov-03	0	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
PW-39	7-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-39	22-Aug-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
PW-39	11-Nov-02	0	0	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
RS-1	1-Jun-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
RS-1	21-Jun-00	0	0	ug/l																								E+E 2000a
RS-1	22-Jun-00	0	0	ug/l				1 U		1 U				2 U		1 U	1 U	1 U		1 U	5 U	1 U		1 U	1 U	1 U	1 U	E+E 2000a
RS-1	9-Jul-02	0	0	ug/l			2 U	10 U	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 UJ	2 U		Farallon 2003
RS-1	9-Jul-02	0	0	ug/l			2 U	10 U	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 UJ	2 U		Farallon 2003
RS-1	9-Jul-02	0	0	ug/l			0.4 U	2 U	0.8 U	0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.54	0.4 U	0.4 U		0.4 U	2 U	0.4 U		Farallon 2003
RS-2	10-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.59	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-2	10-Jul-02	0	0	ug/l			1 U	9.8 B	2 U	1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U		Farallon 2003
RS-2	10-Jul-02	0	0	ug/l			0.4 U	7.1 B	0.8 U	0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.79	0.4 U	0.4 U		0.4 U	2 U	0.4 U		Farallon 2003
RS-3	10-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-3	11-Jul-02	0	0	ug/l			2 U	19 B	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U		Farallon 2003
RS-3	11-Jul-02	0	0	ug/l			2 U	21 B	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U		Farallon 2003
RS-4	29-Jun-00	0	0	ug/l				5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	E+E 2000a
RS-4	16-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-4	16-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-4	16-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-5	11-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-5	11-Jul-02	0	0	ug/l			0.4 U	4.7 B	0.8 U	0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U		Farallon 2003
RS-5	11-Jul-02	0	0	ug/l			2 U	28 B	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U		Farallon 2003
RS-6	15-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.53	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-6	15-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-6	15-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-7	16-Jul-02	0	0	ug/l			20 U	100 U		20 U						20 U	20 U	20 U		20 U	20 U	20 U		20 U		20 U		Farallon 2003
RS-7	16-Jul-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-7	16-Jul-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-8	24-Jun-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-8	24-Jun-02	0	0	ug/l			1 U	5 U	4.4	1 U				1.7		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 UJ	1.1		Farallon 2003
RS-8	25-Jun-02	0	0	ug/l			0.2 U	1 U	1.9	0.2 U			0.2 U	0.83		0.2 U	0.2 U	0.2 U		0.5 U	0.26	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-9	11-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-9	11-Jul-02	0	0	ug/l			2 U	26 B	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U		Farallon 2003
RS-9	12-Jul-02	0	0	ug/l			2 U	10 U	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U		Farallon 2003
RS-10	9-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.39 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 - Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
RS-10	9-Jul-02	0	0	ug/l			2 U	10 U	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 UJ	2 U		Farallon 2003
RS-10	9-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-10	9-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-11	12-Jul-02	0	0	ug/l			2 U	35 B	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U		Farallon 2003
RS-11	15-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-11	15-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-12	12-Jul-02	0	0	ug/l			10 U	170 B		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-12	12-Jul-02	0	0	ug/l			10 U	130 B		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-12	12-Jul-02	0	0	ug/l			10 U	170 B		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-13	10-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-13	11-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.79		Farallon 2003
RS-13	11-Jul-02	0	0	ug/l			0.2 U	1.5 B	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-14	9-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.42 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-14	10-Jul-02	0	0	ug/l			0.4 U	3.5 B	0.8 U	0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U		Farallon 2003
RS-14	10-Jul-02	0	0	ug/l			0.4 U	3.5 B	0.8 U	0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.49	0.4 U	0.4 U		0.4 U	2 U	0.4 U		Farallon 2003
RS-15A	26-Jun-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-15A	26-Jun-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-15A	26-Jun-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-16	1-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.65 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-16	1-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-16	2-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-17	25-Jun-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-17	25-Jun-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-17A	25-Jun-02	0	0	ug/l			10 U	50 U		10 U						10 U	10 U	10 U		10 U	10 U	10 U		10 U		10 U		Farallon 2003
RS-18	8-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.34 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-18	8-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-18	9-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-19	3-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.45 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-19	3-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.47 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-19A	8-Jul-02	0	0	ug/l			2 U	10 U	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 UJ	2 U		Farallon 2003
RS-20	2-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-20	2-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-20	2-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-20	2-Jul-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-21	26-Jun-02	0	0	ug/l			4 U	20 U	8 U	4 U						4 U	4 U	4 U		4 U	4 U	4 U		4 U		4 U		Farallon 2003
RS-21	26-Jun-02	0	0	ug/l			2 U	10 U	4 U	2 U				2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 UJ	2 U		Farallon 2003
RS-22	27-Jun-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-22	27-Jun-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-23A	28-Jun-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-23A	28-Jun-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 UJ	0.2 U		Farallon 2003
RS-24	17-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
RS-24	17-Jul-02	0	0	ug/l			1 U	5 U	2 U	1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U		Farallon 2003
RS-24	17-Jul-02	0	0	ug/l			1 U	5 U	2 U	1 U				1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U		Farallon 2003
RS-30	4-Sep-03	18.5	0	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-30	4-Sep-03	18.5	0	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-30	4-Sep-03	31	26	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-30	4-Sep-03	42.5	0	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-30	4-Sep-03	0	0	ug/l				1													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-31	3-Sep-03	18	18	ug/l				1 U													0.21	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-31	3-Sep-03	31	31	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-31	3-Sep-03	45	45	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-33	5-Sep-03	18.5	18.5	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-33	5-Sep-03	31	31	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-33	5-Sep-03	43.5	43.5	ug/l				100 U													20 U	20 U		20 U		20 U		Farallon 2004
RS-41	25-Aug-03	12	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-41	25-Aug-03	28.5	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-41	25-Aug-03	36.5	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-42	26-Aug-03	13.5	13.5	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-42	26-Aug-03	13.5	13.5	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-42	26-Aug-03	31	31	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-42	26-Aug-03	34.5	34.5	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-43	27-Aug-03	14	14	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004

Appendix A-3. Groundwater Analytical Results for VOCs

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitrosodin-propylamine	n-Propyl-benzene	o-Xylene	Penta-chloro-ethane	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4 -Dichloro 2-butene	Trichloro-fluoromethane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
RS-43	27-Aug-03	23	23	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-43	27-Aug-03	35	35	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-46	13-Apr-04	22	22	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-46	13-Apr-04	28	28	ug/l				10 U													2 U	2 U		2 U		2 U		Farallon 2004
RS-46	13-Apr-04	32.5	32.5	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
RS-46	13-Apr-04	40	40	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
RS-46	13-Apr-04	44.5	44.5	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
RS-47	17-Jun-04	16.5	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-47	17-Jun-04	29.5	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-47	17-Jun-04	39	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-48	16-Jun-04	16	0	ug/l				20 U													4 U	4 U		4 U		4 U		Farallon 2004
RS-48	16-Jun-04	27.5	0	ug/l				10 U													2 U	2 U		2 U		2 U		Farallon 2004
RS-48	16-Jun-04	40	0	ug/l				1 U													0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
RS-49	15-Jun-04	15	0	ug/l				10 U													2 U	2 U		2 U		2 U		Farallon 2004
RS-49	15-Jun-04	27	0	ug/l				50 U													10 U	10 U		10 U		10 U		Farallon 2004
RS-49	15-Jun-04	40	0	ug/l				10 U													2 U	2 U		2 U		2 U		Farallon 2004
RS-5	11-Jul-02	0	0	ug/l			0.2 U	1 U	0.4 U	0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
SG2-8	20-Nov-02	18	21	ug/l			2 U	10 U		2 U			2 U	2 U		2 U	2 U	2 U		2 U	2 U	2 U		2 U	10 U	2 U	4 U	Farallon 2003
SG2-9	20-Nov-02	18	21	ug/l			4 U	20 U		4 U			4 U	4 U		4 U	4 U	4 U		4 U	4 U	4 U		4 U	20 U	4 U	8 U	Farallon 2003
SG1-12	20-Nov-02	17	20	ug/l			0.4 U	2 U		0.4 U			0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	0.4 U	0.4 U		0.4 U	2 U	0.4 U	0.8 U	Farallon 2003
SG1-13	20-Nov-02	18	21	ug/l			1 U	5 U		1 U			1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U		1 U	5 U	1 U	2 U	Farallon 2003
SG1-20	20-Nov-02	18	21	ug/l			0.2 U	1 U		0.2 U			0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.25	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SG-215	20-Nov-02	18	21	ug/l			10 U	50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	Farallon 2003
SP-1	12-Aug-99	15		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-1	12-Aug-99	40		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-2	12-Aug-99	15		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-2	12-Aug-99	40		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-3	12-Aug-99	15		ug/l				9													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-3	12-Aug-99	40		ug/l				9													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-4	18-Aug-99	15		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-4	18-Aug-99	40		ug/l				8													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-5	18-Aug-99	15		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-5	18-Aug-99	40		ug/l				7													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-6	18-Aug-99	15		ug/l				24													3	1 U		1 U		449		GeoEngineers 2001
SP-6	18-Aug-99	40		ug/l				1 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-7	18-Aug-99	15		ug/l				8													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-7	18-Aug-99	40		ug/l				5 U													1 U	1 U		1 U		1 U		GeoEngineers 2001
SP-8	18-Aug-99	15		ug/l				5 U													10	1 U		1 U		857		GeoEngineers 2001
SP-8	18-Aug-99	40		ug/l				5 U													1 U	1 U		1 U		4		GeoEngineers 2001
T-1	16-Sep-98	0	0	ug/l				10 U		2 U				2 U	5 U	2 U	2 U	2 U	2.5	1 U	2 U	1.9 U	5 U	1 U		2 U	4 U	Ecology 2001
T-1	20-Jan-99	0	0	ug/l				1 U		2 U				1 U	1 U	1 U	1 U	1 U	2.4 UJ	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
T-2	22-Jul-98	0	0	ug/l	10 U	10 U		20 U		10 U	10 U				10 U	10 U	10 U	10 U	75.9	10 U	10 U	9.4 U	10 U	10 U		10 U	20 U	Ecology 2001
T-2	16-Sep-98	0	0	ug/l				10 U		2 U				2 U	5 U	2 U	2 U	2 U	26	1 U	2 U	1.9 U	5 U	1 U		2 U	4 U	Ecology 2001
T-2	20-Jan-99	0	0	ug/l				1 U		2 U				1 U	1 U	1 U	1 U	1 U	5.5	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
WELL 3	28-Aug-00	0	0	ug/l				25 U		5 U			5 U	5 U		5 U	5 U	5 U		5 U	5 U	5 U		5 U	25 U	5 U	10 U	E+E 2000a
WELL 3	30-Jan-01	0	0	ug/l				50 U		10 U			10 U	10 U		10 U	10 U	10 U		10 U	10 U	10 U		10 U	50 U	10 U	20 U	E+E 2001
WELL 9	29-Aug-00	0	0	ug/l				25 U		5 U			5 U	5 U		5 U	5 U	5 U		5 U	5 U	5 U		5 U	25 U	5 U	10 U	E+E 2000a
WELL 9	29-Aug-00	0	0	ug/l				500 U		100 U			100 U	100 U		100 U	100 U	100 U		100 U	100 U	100 U		100 U	500 U	100 U	200 U	E+E 2000a

Notes:
ft - feet
µg/L - microgram per liter
U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit
J - analyte detected but value is an estimated quantity

Table A-4. Groundwater Analytical Results for Petroleum Hydrocarbons

Sample Location	Date Sampled	Start Depth (ft)	End Depth (ft)	Units	Diesel	Gasoline	Oil	Reference
GP-1	20-Jun-00	0	16	ug/l		4200		E+E 2000a
GP-3	21-Jun-00	12	16	ug/l		100 U		E+E 2000a
PW-21	10-Mar-99	0	0	ug/l	16 U			Ecology 2001
Excavation	14-Sep-99	0	0	ug/l	3300	9200	0.5 U	GeoEngineers 2001

Notes:
ft - feet
µg/L - microgram per liter
U - analyte not detected at given detection limit

Table A-5. Surface Water Analytical Results for Other VOCs

Sample Location	Date Sampled	Units	1,1,1,2-Tetra-chloroethane	1,1,1-Tri-chloroethane	1,1,2,2-Tetra-chloroethane	1,1,2-Tri-chloroethane	1,1,2-Trichloro-trifluoroethane	1,1-Di-chloroethane	1,1-Di-chloroethene	1,1-Di-chloro-propanone	1,1-Dichloro-propene	1,2,3-Trichloro-benzene	1,2,3-Trichloro-propane	1,2,4-Trimethyl-benzene	1,2-Dibromo-3-chloropropane	1,2-Dibromo-ethane	1,2-Dichloro-benzene	1,2-Dichloro-ethane	1,2-Dichloro-ethene	1,2-Dichloro-propane
CS-1	10-Jul-07	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U
CS-2	10-Jul-07	ug/l	1 U	1 U	1 U	1 U		1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U
SW-1	29-Apr-98	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U		1 U
SW-1	23-Jul-98	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U
SW-2	23-Jul-98	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U
SW-3	23-Jul-98	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U		1 U
SW-4	28-Dec-98	ug/l	2 U	1 U	2 U	1 U	1 U	1 U	5 U		1 U	5 U	2 U	1 U	5 UJ	2 U	1 U	1 U		1 U
SW-5	18-Jul-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.95 U	0.2 U		0.2 U
SW-5	21-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-5	4-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-5	17-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-6	18-Jul-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	1.1 U	0.2 U		0.2 U
SW-6	21-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-6	4-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-6	14-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-7	18-Jul-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.96 U	0.2 U		0.2 U
SW-7	21-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-7	4-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-7	14-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-8	18-Jul-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.96 U	0.2 U		0.2 U
SW-8	22-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-8	4-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-8	14-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-9	18-Jul-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.95 U	0.2 U		0.2 U
SW-9	22-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-9	5-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-9	17-Nov-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	1 U		2 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-10	19-Jul-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.94 U	0.2 U		0.2 U
SW-10	21-Nov-02	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U
SW-10	5-Feb-03	ug/l	0.2 U	0.2 U	0.2 U	0.2 U		0.2 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	1 U	0.2 U	0.2 U	0.2 U		0.2 U

Table A-5. Surface Water Analytical Results for Other VOCs

Sample Location	1,3,5-Trimethyl-benzene	1,3-Dichloro-benzene	1,3-Dichloro-propane	1,3-Dichloro-propene (total)	1,4-Dichloro-benzene	1-Methyl-naphthalene	2,2-Dichloro-propane	2,3,4,5-Tetra-chlorophenol	2-Butanone	2-Chloroethyl vinyl ether	2-Chloro-toluene	2-Hexanone	2-Nitropropane	4,6-Dinitro-2-methylphenol	4-Chloro-toluene	4-Isopropyl-toluene	4-Methyl-2-pentanone	Acetone	Acrylonitrile	Allyl chloride	Benzene	Bromo-benzene
CS-1	1 U	1 U	1 U		1 U		1 U		2 U		1 U	2 U	1 UJ		1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U
CS-2	1 U	1 U	1 U		1 U		1 U		2 U		1 U	2 U	1 UJ		1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U
SW-1	1 U	1 U	1 U		1 U		1 U		2 U		1 U	2 U			1 U	1 U	2 U	2 UJ	1 U	1 U	1 U	1 U
SW-1	1 U	1 U	1 U		1 U		1 U		2 U		1 U	2 U	1 U		1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U
SW-2	1 U	1 U	1 U		1 U		1 U		2 U		1 U	2 U	1 U		1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U
SW-3	1 U	1 U	1 U		1 U		1 U		2 U		1 U	2 U	1 U		1 U	1 U	2 U	2 U	1 U	1 U	1 U	1 U
SW-4	1 U	1 U	2 U		1 U		1 U		5 U		1 U	4 UJ			1 U	1 U	2 UJ	2 U			1 U	1 U
SW-5	0.2 U	0.95 U	0.2 U		0.95 U		0.2 U		5 U	1 U	0.2 U	2 U		24 U	0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-5	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-5	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-5		0.2 U	0.2 U		0.2 U		0.2 U			1 U	0.2 U				0.2 U							0.2 U
SW-6	0.2 U	1.1 U	0.2 U		1.1 U		0.2 U		5 U	1 U	0.2 U	2 U		27 U	0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-6	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-6	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-6		0.2 U	0.2 U		0.2 U		0.2 U			1 U	0.2 U				0.2 U							0.2 U
SW-7	0.2 U	0.96 U	0.2 U		0.96 U		0.2 U		5 U	1 U	0.2 U	2 U		24 U	0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-7	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-7	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-7		0.2 U	0.2 U		0.2 U		0.2 U			1 U	0.2 U				0.2 U							0.2 U
SW-8	0.2 U	0.96 U	0.2 U		0.96 U		0.2 U		5 U	1 U	0.2 U	2 U		24 U	0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-8	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-8	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-8		0.2 U	0.2 U		0.2 U		0.2 U			1 U	0.2 U				0.2 U							0.2 U
SW-9	0.2 U	0.95 U	0.2 U		0.95 U		0.2 U		5 U	1 U	0.2 U	2 U		24 U	0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-9	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-9	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-9		0.2 U	0.2 U		0.2 U		0.2 U			1 U	0.2 U				0.2 U							0.2 U
SW-10	0.2 U	0.94 U	0.2 U		0.94 U		0.2 U		5 U	1 U	0.2 U	2 U		24 U	0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-10	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U
SW-10	0.2 U	0.2 U	0.2 U		0.2 U		0.2 U		5 U	1 U	0.2 U	2 U			0.2 U	0.2 U	2 U	5 U			0.2 U	0.2 U

Table A-5. Surface Water Analytical Results for Other VOCs

Sample Location	Bromo-chloro-methane	Bromo-dichloro-methane	Bromoform	Bromo-methane	Butyl-benzyl-phthalate	Carbon disulfide	Carbon tetra-chloride	Chloro-benzene	Chloro-ethane	Chloroform	Chloro-methane	cis-1,3-Dichloro-propene	Dibromo-chloro-methane	Dibromo-methane	Dichloro-difluoro-methane	Diethyl ether	Diethyl-phthalate	Ethyl methacrylate	Ethyl-benzene	Isopropyl-benzene	Meth-acrylonitrile	Methyl methacrylate	Methyl Tert-Butyl Ether	Methylene chloride
CS-1	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U
CS-2	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U
SW-1	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U
SW-1	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U
SW-2	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U
SW-3	1 U	1 U	1 U	1 U		2 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	2 U
SW-4	1 U	2 U	2 U	2 U		1 U	1 U	1 U	2 U	1 U	2 U	1.1 U	1 U	5 U	40 U	1 U			1 U	1 U			2 U	1 U
SW-5	0.2 U	0.2 U	1 U	0.2 U	0.95 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.95 U		0.2 U	0.2 U			0.2 U	1 U
SW-5	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-5	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-5	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U									2 U
SW-6	0.2 U	0.2 U	1 U	0.2 U	1.1 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		1.1 U		0.2 U	0.2 U			0.2 U	1 U
SW-6	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-6	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-6	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U									2 U
SW-7	0.2 U	0.2 U	1 U	0.2 U	0.96 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.96 U		0.2 U	0.2 U			0.2 U	1 U
SW-7	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-7	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-7	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U									2 U
SW-8	0.2 U	0.2 U	1 U	0.2 U	0.96 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.96 U		0.2 U	0.2 U			0.2 U	1 U
SW-8	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-8	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-8	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U									2 U
SW-9	0.2 U	0.2 U	1 U	0.2 U	0.95 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.95 U		0.2 U	0.2 U			0.2 U	1 U
SW-9	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-9	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-9	0.2 U	0.2 U	1 U	0.2 U			0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U									2 U
SW-10	0.2 U	0.2 U	1 U	0.2 U	0.94 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		0.94 U		0.2 U	0.2 U			0.2 U	1 U
SW-10	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U
SW-10	0.2 U	0.2 U	1 U	0.2 U		0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U				0.2 U	0.2 U			0.2 U	1 U

Table A-5. Surface Water Analytical Results for Other VOCs

Sample Location	m-Xylene	n-Butyl-benzene	n-Butyl-chloride	N-Nitro-sodinpropyla-mine	n-Propyl-benzene	o-Xylene	Pentachloro-ethane	Pyridine	sec-Butyl-benzene	Styrene	tert-Butyl-benzene	Tetra-hydrofuran	Toluene	trans-1,2-Di-chloroethene	trans-1,3-Di-chloropropene	trans-1,4-Dichloro-2-butene	Trichloro-fluoro-methane	Vinyl acetate	Vinyl chloride	Xylenes	Reference
CS-1		1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
CS-2		1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 UJ	1 U		1 U	2 U	Parametrix 2007
SW-1		1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
SW-1		1 U	1 U		1 U	1 U	1 U		1 U	0.13 J	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
SW-2		1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
SW-3		1 U	1 U		1 U	1 U	1 U		1 U	1 U	1 U	1 U	1 U	1 U	0.94 U	1 U	1 U		1 U	2 U	Ecology 1999b
SW-4		2 U			1 U	1 U	1 U		1 U	1 U	1 U	2 U	1 U	1 U	1.9 U	5 U	1 U		1 U	2 U	Ecology 2001
SW-5	0.4 U	0.2 U		0.95 U	0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
SW-5		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.43	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SW-5		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
SW-5														0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
SW-6	0.4 U	0.2 U		1.1 U	0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
SW-6		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SW-6		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
SW-6														0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
SW-7	0.4 U	0.2 U		0.96 U	0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
SW-7		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SW-7		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
SW-7														0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
SW-8	0.4 U	0.2 U		0.96 U	0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
SW-8		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SW-8		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
SW-8														0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
SW-9	0.4 U	0.2 U		0.95 U	0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U		Farallon 2003
SW-9		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SW-9		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004
SW-9														0.2 U	0.2 U		0.2 U		0.2 U		Farallon 2004
SW-10	0.4 U	0.2 U		0.94 U	0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	2 U	Farallon 2003
SW-10		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2003
SW-10		0.2 U			0.2 U	0.2 U			0.2 U	0.2 U	0.2 U		0.2 U	0.2 U	0.2 U		0.2 U	1 U	0.2 U	0.4 U	Farallon 2004

Notes:
µg/L - microgram per liter
U - analyte not detected at given detection limit
UJ - analyte not detected, value is an estimated detection limit

Table A-6. Surface Water Analytical Results for Petroleum Hydrocarbons

Sample Location	Date Sampled	Units	Gasoline	Reference
SW-5	18-Jul-02	ug/l	100 U	Farallon 2003
SW-6	18-Jul-02	ug/l	100 U	Farallon 2003
SW-7	18-Jul-02	ug/l	100 U	Farallon 2003
SW-8	18-Jul-02	ug/l	100 U	Farallon 2003
SW-9	18-Jul-02	ug/l	100 U	Farallon 2003
SW-10	19-Jul-02	ug/l	100 U	Farallon 2003

Notes:
µg/L - microgram per liter
U - analyte not detected at given detection limit

TABLE 6
SUMMARY OF CHEMICAL ANALYTICAL RESULTS
DRUM CONTENTS
S.C. Breen Construction Property
Chehalis, Washington

Analyte (mg/kg)	Released to Excavation[1,3]	Sidewall Seep[1,3]	Recovered Drum #63[1,3]	Recovered Drum #12[4]
Sludge Phase				
Sample Date	**09/14/99**	**09/22/99**	**09/22/99**	**08/05/99**
Vinyl Chloride	5.8	--	<5.0	--
Benzene	0.37	--	<1.0	--
Toluene	880	--	<1.0	--
Ethylbenzene	57.9	--	<1.0	--
Total Xylene	740	--	<1.0	--
Methylene Chloride	16.2	--	<1.0	--
Trans-1,2-Dichloroethene	2.85	--	<1.0	--
1,1-Dichloroethane	0.74	--	12	--
Cis-1,2-Dichloroethene	160	--	4.8	--
1,1,1-Trichloroethane	9.71	--	2,100	--
Trichloroethene	180	--	5.6	--
1,1,2-Trichloroethane	0.28	--	<1.0	--
Tetrachloroethene	730	--	55	--
Water Phase (µg/l)				
Vinyl Chloride	<5.0	870	--	2,760
Benzene	<1.0	<1.0	--	<50
Toluene	3,600	67	--	102
Ethylbenzene	int	<1.0	--	23
Total Xylene	6,900	<1.0	--	364
Methylene Chloride	2,800	<1.0	--	1,270
Trans-1,2-Dichloroethene	36	6.2	--	63
1,1-Dichloroethane	14	<1.0	--	68
Cis-1,2-Dichloroethene	19,000	140	--	4,470
1,1,1-Trichloroethane	17	7.4	--	662
Trichloroethene	780	7.7	--	4,140
1,1,2-Trichloroethane	4.5	<1.0	--	107
Tetrachloroethene	2,800	160	--	8,630

Notes:

[1] Sample analyzed by North Creek Analytical Laboratory

[2] Sample analyzed by Manchester Laboratory (Ecology)

[3] Sample analyzed using EPA Method 8021B.

[4] Sample analyzed using EPA Method 8260, other analytes detected:

Acetone - 3,210 µg/l

Tert-Butylbenzene - 127 µg/l

Chloroethane - 186 µg/l

Naphthalene - 268 µg/l

N-Propylbenzene-106 µg/l

1,2,4-Trimethylbenzene - 661 µg/l

1,3,5-Trimethylbenzene - 2,760 µg/l

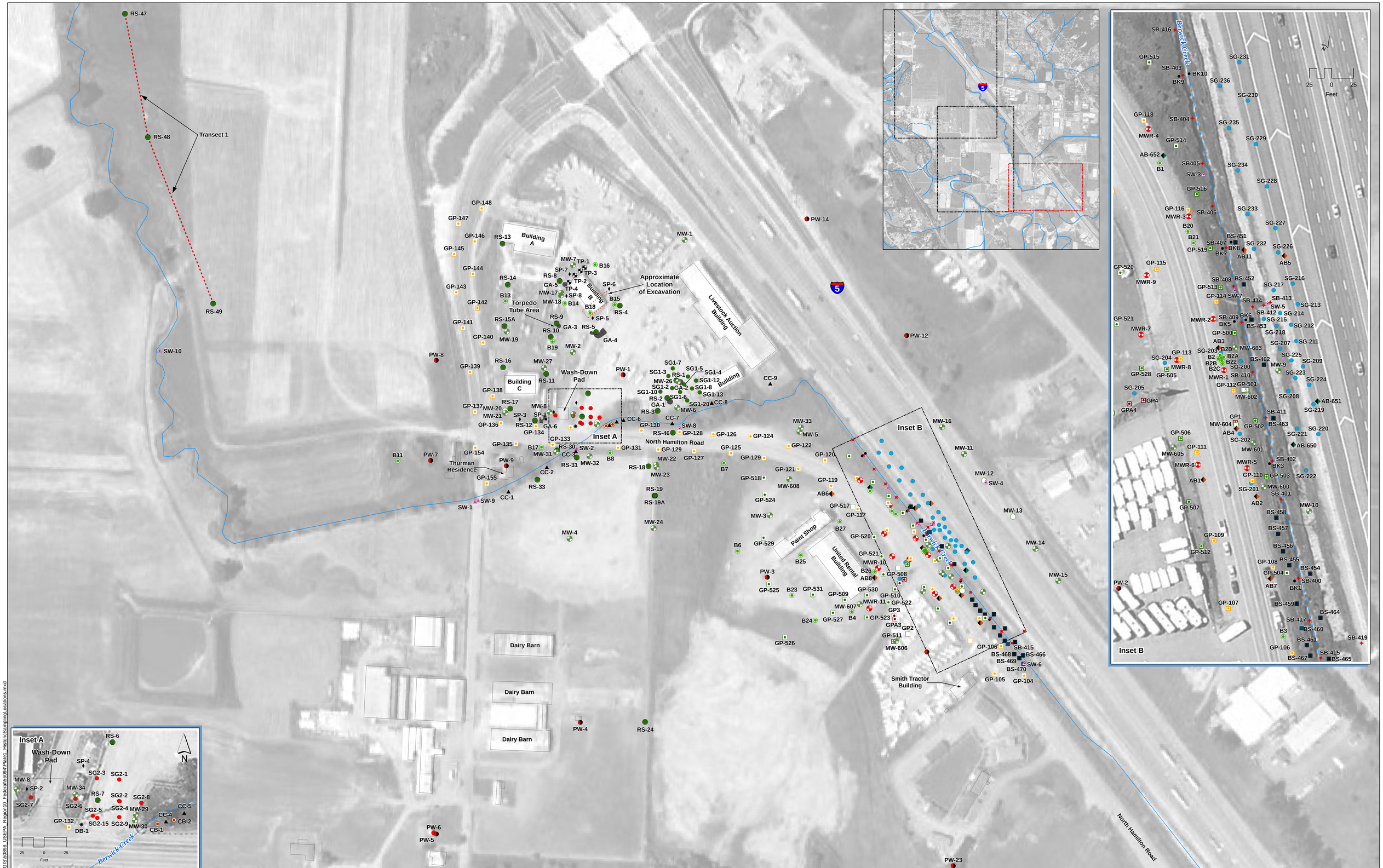
mg/kg = milligrams per kilogram

"µg/l" = micrograms per liter

"<5.0"=Indicates that the analyte was not detected above the concentration shown.

"int" = Matrix interference prevented quantifying this analyte.

Appendix B
Plates



Legend

- Auger Boring (E & E) / EPA (Start), 2000 - 2001 Location AB-9 and -10 Uknown
- Auger Boring (URS / EPA, 2003)
- Soil Boring (TEG / Ecology, 1998) Location B9, B10 and B12 Unknown
- Stream Bed (URS / EPA, 2003)
- Creek Channel (Farallon / Breen, 2004)
- Geoprobe Boring (E & E / EPA (Start), 2000 - 2001)
- Geoprobe Boring (E & E / EPA (Start), 2000 - 2001) Location GP-161 Unknown
- Geoprobe Boring (URS / EPA, 2003)
- Monitoring Well (SAIC / Ecology, 1997)
- Monitoring Well (E & E / EPA (Start, 2000 - 2001))
- Monitoring Well (Farallon / Breen, 2002)
- Monitoring Well (Farallon / Breen, 2004)
- Monitoring Well (URS / EPA, 2003)
- Monitoring Well/Recovery Well (Ecology, 1999)
- Monitoring Well/Recovery (E&E/EPA (Start), 00-01)
- Private Well Location of PW-10, -11, -13, -18, -19 and -20 Unknown
- Reconnaissance Boring (Farallon / Breen, 2002)
- Reconnaissance Boring (Farallon / Breen, 2004) Analytical Data for RS-32 missing
- Stream Bank (URS / EPA, 2003)
- Soil Gas (Farallon / Breen, 2002) Location of SG-1 and SG1-14 to SG1-19 Unknown
- Soil Gas (Farallon / Breen, 2002) Location of SG2-10 to SG2-14 Unknown
- Soil Gas (URS / EPA, 2003) Location of SG-206 and SG-210 Unknown
- Strataprobe Boring (Geoengineers / Breen, 1999)
- Surface Water (Farallon / Breen, 2002) Location of SW-1 Unknown
- Test Pit (Geoengineers / Breen, 1999)
- Bank Sample
- Shallow Soil (Farallon / Breen, 2004)
- Shallow Soil (Farallon / Breen, 2004)
- Geophysical Survey Area

N

100 0 100

Feet

Sources:
1. Paramatrix (March, 2010) [Ecology and Environment, Inc. 2002]

Plate 1
Historical Sampling Locations
HRIA

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: V:\rsyv01\GIS\50898_USEPA_Region10_Federal\50894\Plate1_HistoricSamplingLocations.mxd

Legend

- Monitoring Well (Farallon / Breen, 2002)
- Private Well
  Location Unknown:
  PW-10, -11, -13, -18, -19 and -20
- Reconnaissance Boring (Farallon / Breen, 2002)
- Reconnaissance Boring (Farallon / Breen, 2004)
- Surface Water Samples (2007)

N

150 0 150
Feet

Sources:
1. Paramatrix (March, 2010)
[Ecology and Environment, Inc. 2002]

Plate 2
Historical Sampling Locations
HRIA

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: July 21, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure2-1_HistoricSamplingLocations.mxd

Legend

- Monitoring Well (Farallon / Breen, 2004)
- Private Well Location Unknown: PW-10, -11, -13, -18, -19 and -20
- Reconnaissance Boring (Farallon / Breen, 2004)

N

200 0 200
Feet

Sources:
1. Paramatrix (March, 2010)
[Ecology and Environment, Inc. 2002]

Plate 3
Historical Sampling Locations
HRIA

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Plate3_Portrait.mxd

Appendix C
Technical Memoranda

Study Limitations Analysis Technical Memorandum

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE, SUITE 900
SEATTLE, WA 98101-3140

August 26, 2011

Reply To: OEA-095

MEMORANDUM

SUBJECT: Revision 4 – Hamilton/Labree Superfund Site Study Limitations Analysis
Project Name: EPA R-10 AES – Hamilton/Labree Negotiation Support

FROM: Marcia Knadle, Hydrogeologist

TO: Tamara Langton, Project Manager

1.0 INTRODUCTION

EPA Region 10, with the support of the Parametrix Team (Contractor), is currently developing a Remedial Investigation/Feasibility Study (RI/FS) for the Hamilton/Labree Roads Groundwater Contamination Site in Chehalis, Washington (Site). The purpose of this technical memorandum is to present an analysis of the limitations of the investigation data collected to date and to identify additional data and activities needed to characterize the Site prior to selection of a remedy. A primary focus of further investigation will be to better understand the interaction of the identified groundwater plumes to assist in development of a refined conceptual site model (CSM) for the Site.

2.0 SITE DESCRIPTION

The Site is located near the intersection of North Hamilton Road and Labree Road, west of Interstate 5 (I-5), about 2 miles south of the City of Chehalis, Washington. The Site includes two areas where releases of hazardous wastes are known to have occurred: Operable Unit 1, which is hereafter referred to as the Hamilton Road Impact Area (HRIA), and the S.C. Breen Construction Company (Breen) Property. The Site also contains an area where a release is likely to have occurred called, for purposes of the Remedial Investigation (RI) Report, the Thurman Berwick Creek Area (**Attachment 1**). Contaminated groundwater plumes originate from these areas extending downgradient and west of Labree Road. The Breen Property, the Thurman Berwick Creek Area, and downgradient areas outside of the HRIA compose Operable Unit 2.

The primary contaminant of potential concern (COPC) at the Site is tetrachloroethylene (PCE). Minor amounts of reductive dechlorination products (trichloroethylene [TCE], cis-1,2-dichloroethylene [DCE] and vinyl chloride) also occur mostly near source areas, but the groundwater is too oxygenated for biodegradation to be a major natural attenuation process. Other COPCs across the Site are tetrahydrofuran and methylene chloride. Total Petroleum Hydrocarbons (TPH) is also being considered as a presumptive COPC until proven otherwise.

3.0 STUDY LIMITATIONS

The data used to prepare the RI Report represents a compilation of numerous published documents and data not previously presented in reports, which were generated by a variety of consultants and the EPA between 1993 and 2007. Investigations were conducted on behalf of the EPA, the Department of Ecology (Ecology) and the Breen Company over the years. The table in **Attachment 2** provides a summary of investigations conducted to date at the Site. The challenges in compiling the RI Report using the various data sources included:

- The varying purposes of the different phases of investigations
- Varying investigation methods utilized over the years
- Improvements in various technologies (i.e., soil sample collection methods)
- Loss of data
- Transcription errors
- Unsurveyed exploration locations
- Changes in personnel working on the project over time
- Differing opinions by the various consultants and agencies working on the project
- The complexity of this site

It is therefore acknowledged that there may be inconsistencies in the RI Report at times, and there are numerous data gaps remaining for the RI.

The limitations of the remedial investigations conducted to date across the Site range from data gaps affecting our ability to delineate confidently the magnitude and extent of PCE contamination to gaps in our fundamental understanding of the physical controls on how PCE migrates in groundwater which could significantly alter the CSM. These "gaps" include:

- Understanding of the nature, age, and location of all sources, and plume dynamics.

- Explaining the large spatial differences in source-to-plume contaminant mass-transfer processes both vertically and horizontally, as evidenced by an apparent transport "bottleneck" downgradient of the HRIA (see Section 6 for further discussion of the "bottleneck"). The graph in **Attachment 3** depicts concentrations versus distance from the HRIA and illustrates the "bottleneck."

- Identifying the location and fate of the downgradient edge of the plume, in particular, whether it discharges to surface water (Dillenbaugh Creek).

Additional characterization can resolve some of these gaps such as site-wide hydraulic characteristics and the vertical distribution of PCE in the plume downgradient of Labree Road, while others will require more sophisticated analysis such as a stable isotope study or analyzing for tentatively identified compounds (TICs) to distinguish between the PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek area. However, resolution of other gaps could require information that may never be available (e.g., historical information regarding activities in potential source areas).

This "data gaps analysis" first looks at several site-wide data needs and suggests activities to address these needs. It then discusses the HRIA followed by the Breen Property, the area between the HRIA and

the Thurman Berwick Creek Area (the "bottleneck"), the Thurman Berwick Creek area, and finally the downgradient area west of Labree Road.

4.0 SITE-WIDE

4.1 Potential Sources of Contamination/Identified Data Gaps

This section presents the identified Site-wide data gaps based on historical data review and analysis and recommended additional activities to fill those gaps.

4.1.1 Groundwater Plume

The estimated groundwater plume configuration in the area of the HRIA, Breen Property, and Thurman Berwick Creek area, and site-wide are shown in **Attachments 4** and **5**, and RI Report Figures 4-6 and 4-7, respectively. The RI Report figures for the PCE plume in the source areas (HRIA, Breen Property, and Thurman Berwick Creek Area) show worst-case scenarios for both the upper zone (5-25 feet deep) and the lower zone (25-45 feet deep) of the shallow aquifer. These hand-drawn isoconcentration contours are biased to show as much contaminant mass migrating from the HRIA to the other sources as can reasonably be inferred. As such, the contours ignore some isolated low concentration data points.

In contrast, the upper and lower zone plume maps for the shallow aquifer shown in **Attachments 4** and **5** use the same data but show contours produced by a natural-neighbor contouring program. These maps suggests two isolated sources of PCE contaminate the upper zone while in the lower zone less than 500 micrograms per liter (µg/L) of PCE from the HRIA reaches the Breen Property, and little to no PCE from the HRIA reaches the Thurman Berwick Creek area. Because contouring programs do not take groundwater flow into account and use all active data points, they do not connect areas of high concentration along flow lines that have been connected on the hand-drawn figures. EPA considers the hand-drawn figures to be more representative of true site conditions, but the computer contoured figures help highlight areas where additional groundwater data are needed to confirm the extent of PCE migration from the HRIA and to identify any other source(s) of lower zone PCE in the area between the former United Rentals Building and the Thurman Berwick Creek area.

As shown on the hand-drawn contours (RI Report Figures 4-6 and 4-7), PCE in groundwater at concentrations greater than 1,000 µg/L originating from the HRIA does not appear to have reached the Thurman Berwick Creek area. Assuming the hand-contoured lower zone figure is correct, concentrations of PCE slightly greater than 1,000 µg/L may have reached the suspected Breen Property source areas along Labree Road. Little or no PCE contamination from the HRIA has reached either the Breen Property or Thurman Berwick Creek Area sources in the upper zone. PCE at concentrations at or less than 1,000 µg/L has presumably commingled with the PCE plume originating from the Breen property and an apparent PCE plume originating from or just upgradient of the Thurman Berwick Creek area.

Currently, the extent of the PCE groundwater plume downgradient of the Breen Property and the Thurman Berwick Creek area west of Labree Road is unknown, but a narrow plume of about 1,000 µg/L appears to extend at least 3,000 feet downgradient of Labree Road, based on concentrations in MW-25 and boring RS-20, the most downgradient data points in the plume. Because the end of the plume has never been located, it is unknown whether the plume is stable or expanding, or whether it (or some portion of it) discharges to surface water (Dillenbaugh Creek). Without this information, it's impossible to produce a robust ecological risk assessment, to be confident that no additional private wells may be impacted, or to evaluate whether natural attenuation processes can contain the plume. In addition, the plume edges in the downgradient area west of Labree Road have not been adequately established, particularly on the northeast edge parallel to I-5.

4.1.2 Uncertainty Related To Groundwater Plume

Three-dimensional geostatistical modeling was completed by CDM using Environmental Visualization Software (EVS) (CDM 2009). This modeling was used, in part, to help identify possible areas of the site where available groundwater data was insufficient to adequately characterize the area. To assist in assessing site-wide data gaps, uncertainty plots were created using EVS. Uncertainty plots generated using EVS are included as **Attachment 6**.

Uncertainty tends to be highest where the model predicts a high concentration, but there are no samples in the area to provide any confidence. On these plots, areas with green, yellow or red coloration have the highest uncertainty and are areas where additional sampling is recommended. As shown in these plots, areas with the highest uncertainty include:

- The area west of the Thurman Berwick Creek Area, east of PW-21, and south of RS-49
- The downgradient area west and northwest of the Breen Property and Thurman Berwick Creek Area, including the area around and downgradient of MW-25

Other areas of the site where high uncertainty exists were also identified using the completed EVS model and through non-EVS related evaluation, including whether high concentrations of PCE actually exist in the southeastern corner of the Breen Property as indicated by the EVS model.

4.2 Other Site-Wide Data Gaps

This section discusses other data gaps that are common to all areas of the Site.

4.2.1 Hydraulic Conductivity and Other Aquifer Parameters

The hydraulic conductivity for the aquifer at the Site requires further evaluation, especially in downgradient areas. Aquifer testing was conducted and hydraulic conductivity values were generated for the HRIA and the Breen Property (URS 2004, Farallon 2004). However, there are no hydraulic conductivity values for the areas west of the United Rentals facility and west of Labree Road. For assessing and modeling plume migration in groundwater, a site-wide understanding of hydraulic conductivity is necessary. To evaluate whether the hydraulic conductivity measurements from the sources of contamination are applicable to the entire site, hydraulic conductivity should be determined for the aquifer in the downgradient areas, including the “bottleneck” area between the HRIA and the Thurman Berwick Creek Area. Existing logs do not indicate any significant geologic discontinuity in the area downgradient of United Rentals to explain the transfer “bottleneck”; however, there are few well logs for that area.

In addition, other aquifer characteristics, such as porosity (total/effective), vertical/horizontal gradients and anisotropy should be determined for the downgradient areas to assist in plume modeling and migration assessment.

4.2.2 Vertical Distribution of PCE in Groundwater

The vertical distribution of PCE in groundwater requires further assessment. Information on the vertical distribution of groundwater contamination at the HRIA, Breen Property, and the Thurman Berwick Creek Area is available, and separate cross-sections showing the distribution have been prepared. Three-dimensional geostatistical modeling (CDM 2009) was completed for the Site, but showed several areas where data gaps existed in vertical distribution of PCE including an area located between the HRIA and

Thurman Berwick Creek Area. In addition, information on the vertical distribution of PCE in the area downgradient and west of Labree Road is limited. The collection of additional groundwater samples at various depth intervals within the shallow aquifer is required. This information is useful in assessing groundwater/surface water interaction in downgradient areas to determine the volume of PCE contaminated water that is potentially discharging to the surface water of Berwick Creek and Dillenbaugh Creek versus the volume that is potentially migrating past. The vertical distribution of PCE is also necessary for interpreting the interaction of contaminated groundwater for the various sources in the shallow aquifer and identifying additional sources at the Site.

The vertical distribution is also useful in assessing potential vapor intrusion since the volatile organic compound (VOC) concentration at the groundwater water table is normally directly related to the potential VOC concentrations in indoor or ambient air.

4.2.3 Groundwater Plume Modeling

Groundwater contaminant fate and transport modeling efforts have been completed for the Site by Farallon (2004) and URS (2004) using Biochlor, and groundwater flow and contaminant fate and transport modeling was performed by CDM (2007) using MODFLOW-96 and MT3DMS. However, very different hydrologic characteristics were used for different models, so it is difficult to compare or use the fate and transport results. Moreover, none of the existing models take the transport "bottleneck" into consideration, which seriously limits their usefulness. Groundwater modeling should be completed following collection of new chemical and physical data discussed elsewhere in this technical memorandum and determination of site-wide aquifer parameters including hydraulic conductivity and porosity, assuming that these data collection efforts improve the fundamental understanding of the site. A three-dimensional model would be most appropriate because of the spatial variability in vertical distribution of PCE in groundwater. Fate and transport modeling should be done using a model that can at least generally account for contaminant matrix diffusion and back diffusion processes (e.g., RemChlor).

As stated in Section 4.1.2, three-dimensional geostatistical modeling using EVS was completed by CDM in 2009. This modeling effort should also be updated using the newly collected chemical data for soil and groundwater discussed elsewhere in this technical memorandum to provide a better depiction of the current groundwater plume configuration.

4.2.4 Evaluation of Production Well Influences on Plume

Since completion of the City water main extension in November 2002, production wells local to the HRIA and Thurman Berwick Creek Area have not been influencing the groundwater flow regime. However, numerous water supply wells exist within a 4-mile radius of these sites and may have some influence on gradient conditions recorded at the site during these historical investigations. This influence needs further characterization through analytical and/or numerical modeling efforts to enhance understanding of past and present pumping well influence to plume migration. This information can also be used to determine if additional institutional controls may be needed to protect existing potable water supplies.

4.2.5 Evaluation of Deep Aquifer

The deep aquifer has never been specifically characterized and no monitoring wells have been screened within it. A few private wells are completed in the deep aquifer across the Site. However, only two of the deep aquifer private wells (PW-1 and PW-8) are located in areas of significant shallow aquifer contamination and these two wells are situated within and near the Breen Property. No deep aquifer wells are located within the HRIA. The data is too limited to conclude that the deep aquifer has not been

impacted. Further, the data from the two deep wells is relatively old (last sampled in 2003). No recent data has been collected from the deep aquifer to determine if PCE may have migrated below the aquitard.

4.2.6 Stable Isotope Study

A stable isotope study, including analysis of TICs, should be conducted to attempt to distinguish between the PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek Area. A similar study was successfully completed at the nearby Palermo Well Field Superfund Site in Tumwater, Washington (Vlassopoulos 2006) to determine the party responsible for contamination identified in the City of Tumwater drinking water source wells. Presuming that PCE migrating from the different sources has sufficiently different isotopic or TIC characteristics, the study should be completed to:

- Determine whether the PCE at the Thurman Berwick Creek area is related to the HRIA release or associated with Breen Property contamination
- Determine the extent of PCE related to the HRIA source in the deeper portion of the plume downgradient of Labree Road
- Determine the source of PCE detected in private well PW-21

4.2.7 Vapor Intrusion Sampling

Sub-slab, indoor, and ambient air sampling to assess vapor intrusion was conducted at the Site in November 2007. Limited potential risk related to vapor intrusion was identified. The results of the sampling are described in the Baseline Risk Assessment Report (CDM 2011). The risk estimates for air and the corresponding source evaluation for COPCs in indoor air for the Baseline Risk Assessment are based on one round of sampling in November 2007.

Several significant uncertainties, however, lower confidence in this vapor intrusion risk evaluation.

- Data collected (groundwater, soil, air, etc.) are relatively old and may not reflect current conditions; thus, the evaluation may not be relevant for 2011.
- Air data were collected only once over a two day period. Air data may vary significantly over time and by season, and it is not possible to determine how available data reflect air concentrations over time. Possible exposure concentrations could be significantly under- or over-estimated.
- Outdoor air data suggest that this medium may be a major source to indoor air. A large contribution from outdoor air could make a smaller contribution from the subsurface. It was difficult to determine how shallow groundwater data reflect VOC concentrations at the top of the water table. Such data best characterize the source of VOCs in soil gas, and would be best for estimating ratios between indoor air and groundwater. Ratios could be either under- or over-estimated.

Air sampling is recommended following completion of remedial action at the HRIA to assess changing conditions resulting from the action.

4.3 Activities to Fill Gaps

A summary of the activities recommended to fill the Site-wide gaps identified above include:

- Conducting aquifer testing in the area downgradient and west of Labree Road and downgradient of the United Rentals facility. Aquifer testing west of Labree Road would be completed using existing well MW-25 and new monitoring wells. Testing would be conducted on multiple wells to provide adequate spatial distribution of hydraulic conductivity in the downgradient area.

- Evaluating horizontal and vertical hydraulic gradients Site-wide in and between the upper and lower zones of the shallow aquifer and assessing seasonal gradient shifts in direction by collecting comprehensive gradient data at least quarterly for one year.

- Evaluating depth-discrete variations in hydraulic conductivities and preferential pathways associated with relatively higher-conductivity stratigraphic layers within the shallow aquifer by conducting aquifer testing within temporary boreholes and completed wells screened at discrete depths within the aquifer and include findings in numeric and 3D EVS modeling.

- Collecting soil core samples for analysis of porosity, density, and grain size analysis. Collect core samples from up to two borings and at several depth intervals in the area downgradient and west of Labree Road.

- Conducting additional assessment and mapping of the site-wide vertical distribution of PCE in groundwater. In particular, contaminant characterization is needed for the upper zone of the shallow aquifer between the transport "bottleneck" and the Thurman Berwick Creek area; the lower zone of the shallow aquifer between the United Rentals building and the transport "bottleneck," and centerline- and cross-plume transects from Labree Road to the end of the plume.

- Evaluating the relative contribution of the HRIA, Breen Property and/or Thurman Berwick Creek Area contaminant sources on contaminant mass loading to the Site-wide contaminant plume by evaluating mass discharge of contaminants from proposed transects.

- Installing shallow piezometers within the stream bed along Berwick and Dillenbaugh Creeks to measure head differences between the surface water of the creek and the groundwater within the bed/or slightly below the bed of the creek in order to determine if and where groundwater may be discharging to the creeks.

- Sounding the depth of private wells with no logs that are located within the plume. A better understanding of the depth intervals represented by samples from private wells would be helpful for mapping or modeling the data.

- Installing monitoring wells screened in the deep aquifer within the HRIA, Breen Property and Thurman Berwick Creek Areas to determine if it has been impacted by migration of contamination from the shallow aquifer. These wells would need to be carefully installed using best practices to prevent contamination from the shallow aquifer from migrating to the deep aquifer during and after well construction.

- Updating site-wide EVS modeling using newly acquired Site chemical and physical data discussed in other sections of this technical memorandum. Update three-dimensional modeling using the newly collected aquifer parameters.

- Conducting a stable isotope study, including analysis of TICs, to distinguish between PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek area.

- Conducting additional indoor and ambient air sampling following completion of remedial action at the HRIA.

In addition to the above activities, sampling and analysis of the following constituents needs to take place across the Site:

- Limited sampling and analysis for petroleum hydrocarbons has been conducted at the Site. During completion of the Baseline Risk Assessment, petroleum hydrocarbons were identified as requiring further evaluation. Additional sampling and analysis for petroleum hydrocarbons in soil and groundwater is required at the Site.

- No analyses have ever been conducted for metals in groundwater at the Site. Future site-wide groundwater sampling activities should include this analysis.

- Limited sampling of semi-volatile organic compounds (SVOCs) and pesticides has been conducted at the Site. These constituents should be sampled and analyzed especially at the source areas.

5.0 HAMILTON ROAD IMPACT AREA (HRIA)

This section presents the data gaps identified for the HRIA specifically based on historical data review and analysis, and recommended additional activities to fill those gaps.

5.1 Potential Sources of Contamination/Identified Data Gaps

Soil and groundwater in the HRIA appear to be adequately characterized for the purpose of determining nature and extent of contamination in these media for purposes of the remedial investigation and selection of a remedial action. However, the activities identified below should be conducted at the HRIA prior to or during remedial design.

5.1.1 Soils

Based on review of historical data, soil samples collected for VOC analysis did not appear to have been collected and preserved using the protocols under EPA Method 5035A with the exception of the sampling done in the HRIA in 2003 for the Engineering Evaluation/Cost Analysis (EE/CA) (URS 2004). The primary goal of this VOC collection and preservation technique is to minimize the direct volatilization of contaminants in soil to the atmosphere. Although there is a possibility that VOC results from earlier studies are biased low, no additional soil sampling is recommended at this time as the nature and extent of contamination appear to have been adequately characterized in this area during the EE/CA.

5.1.2 Groundwater

The MW-600 series wells installed in 2003 for the EE/CA (URS 2004) are fully screened through the shallow aquifer and were supposed to be decommissioned if not used soon as groundwater extraction wells. Depth-specific sampling conducted in 2003 revealed strong vertical PCE gradients within the screened interval in many of these wells, including one well (MW-602) that had concentrations greater than the PCE solubility limit in the upper zone of the shallow aquifer, indicating the presence of DNAPL. These wells have since sat unused, which may have resulted in increased vertical migration of contaminants within the shallow aquifer.

5.1.3 Surface Water

No surface water sampling has been completed in Berwick Creek in the northern portion of the HRIA between MW-R4 and MW-33 (see **Attachment 7**, Figure 2-1). High PCE concentrations have been detected in nearby MW-R3 (Northwestern Hot Spot) and MW-33. Currently it is unknown if contaminated groundwater related to these high PCE concentration areas is discharging to surface water or vice versa in this stretch of Berwick Creek.

5.1.4 Creek Bed Sediment/Soil

The quality of soil/sediment in the stretch of Berwick Creek between MW-R4 and MW-33 has not been evaluated. Additional characterization of soil/sediment and water quality in this area is required.

5.2 Activities to Fill Gaps

In addition to the activities suggested under the Site-wide section of this report, the following activities are recommended for the HRIA to fill the above gaps:

- Conduct pre-remedial design soil sampling to validate what VOCs and other contaminants (such as petroleum hydrocarbons which were identified during completion of the Baseline Risk Assessment as requiring further evaluation) are present and at what concentration. The need for this investigation would be assessed once a remedial alternative is selected and prior to remedial design.

- Collect depth-specific groundwater samples from the MW-600 series wells. If results indicate significant downward migration of contamination, these wells should be abandoned.

- Collect surface water samples at 6 to 8 locations in Berwick Creek, in the section of creek between roughly MW-R4 and MW-33. No surface water sampling appears to have been collected within this length of Berwick Creek.

- Collect soil/sediment samples in the section of Berwick Creek between roughly MW-R4 and MW-33. Install four to six borings within Berwick Creek and collect two soil/sediment samples from each boring. Samples need to be collected from the silt layer comprising the creek bed, as opposed to newly deposited sediments.

6.0 "BOTTLENECK"

6.1 Identified Data Gaps

A north-south zone located between the HRIA and the Thurman Berwick Creek Area and characterized by a dramatic reduction in PCE groundwater contamination has been identified and confirmed by EVS modeling. This zone is located east of where North Hamilton Road crosses Berwick Creek, beginning in the area between the former United Rentals building and continuing west through the line of wells containing MW-22, MW-23 and MW-24 (see **Attachment 7**). It appears to act as a PCE transport "bottleneck," preventing significant amounts of PCE from reaching the Breen Property and the Thurman Berwick Creek Area. Within the "bottleneck," the upper zone (upper 25 feet) of the shallow aquifer has little to no PCE contamination, so that the plume is confined to the lower zone (approximately 25 to 50 feet below ground surface [bgs]). Even there, the concentrations are much lower than modeling predicts. Additional evaluation should be conducted to assess this transport "bottleneck," including better

definition of the north and south ends. Conceptual site plume centerline and transect cross-sections depicting this area of low PCE concentration in groundwater are presented in **Attachment 8**.

There is an area upgradient of the "bottleneck" and just west of the HRIA where little groundwater and soil data is available. Only a couple of sampling points (B6 and B7) have been installed between monitoring wells MW-3 and MW-22/MW-23. Groundwater data is limited to two sampling intervals per location and does not include data for the shallowest (0 to 15 bgs) or deepest portions (greater than 35 feet bgs) of the shallow aquifer. Additional data is necessary in this area to fill the data gaps related to the upper and lower zone contamination in the shallow aquifer and to provide additional data for evaluating and mapping out the extent of the "bottleneck." This information may also help confirm that the apparent southern lobe of the PCE plume in the lower zone is from the HRIA.

6.2 Activities to Fill Gaps

In addition to the activities suggested under the Site-wide section of this report, the following activities are recommended for the "bottleneck" area:

- Complete one to two north-south boring transects between MW-3 and MW-22/23 to assess contaminant mass discharge at the outlet of the HRIA source area and the inlet of the interface with the Breen/Thurman Berwick Creek source(s). The boring transect(s) should consist of three to four borings and extend north to the building south of the livestock auction building on the Breen Property and south to the area east of RS-24. Groundwater samples should be collected from four different intervals in each boring: at approximately 5 feet bgs, from 15 to 25 feet bgs, from 30 to 40 feet bgs, and from 40 feet to the base of the aquifer, typically at 50 feet bgs. This sampling strategy will provide two samples from the shallow zone and two from the lower zone for characterization since the apparent bottom of the "clean" zone in the "bottleneck" ranges from 20 to 30 feet.

- Install at least two borings to characterize and define the north and south ends of the "bottleneck" and two additional borings between MW-24 and RS-24. Groundwater sampling would be completed at the same intervals as discussed in the previous bullet.

- Install two to three centerline borings in both the northern and southern plume lobes as needed to fill in between north-south transects. These should extend as far as the Breen wash-down pad for the northern plume lobe and to Labree Road for the southern plume lobe.

- Install a transect extending east and west from the HRIA source area containing DNAPL (Southeastern Hot Spot) to the Thurman Berwick Creek Area. Collect lithologic information and aquifer parameters as discussed in the Site-wide section. Groundwater sampling would be completed at the same intervals as discussed for the two north-south transects between MW-3 and MW-22/23. Use information from this transect to prepare a cross-section identifying conditions from the HRIA, through the "bottleneck", and to the Thurman Berwick Creek Area.

An alternative investigative methodology to consider for the investigations described above is the use of down-hole subsurface profile technologies. Specifically, the use of:

- Hydraulic Profiling Tool (HPT) to obtain soil hydraulic property profiles and measure static water levels. The HPT uses a sensitive down-hole transducer to measure the pressure response of the soil to injection of water.

- Membrane Interface Probe (MIP) to obtain real time information on where PCE is and is not present at depth, the relative concentrations at depth, and where the contaminant occurs in relationship to the lithology.

- Electrical Conductivity (EC) probe to obtain the lithic composition, as well as soil hydraulic properties.

These down-hole tools are advanced using Direct Push Technology (DPT) methods. While past attempts to utilize DPT at the Site have been met with less than optimal results, current equipment may have better success. Besides being able to obtain continuous data, economically speaking, the number of borings that can be extended using DPT is typically much greater than traditional drilling methods. The data gained would generate more accurate cross sections of the Site lithology and contaminant distribution than would traditional drilling methods. Further, if these screening technologies are utilized, the information gained would be used to minimize subsequent drilling efforts as the number and location of subsequent borings and monitoring wells would be reduced and situated in such a manner that will provide the most useful information.

7.0 BREEN PROPERTY

This section presents the data gaps identified for the Breen property based on historical data review and analysis, and activities to fill these gaps.

7.1 Potential Sources of Contamination/Identified Data Gaps

In September 1999, approximately 70 55-gallon drums and other containers, and 600 tons of PCE and petroleum contaminated soil were removed from beneath the southeast end of Building B on the Breen Property (**Attachment 9**). Samples collected from the final excavation were either non-detect or contained contaminants below Ecology's Model Toxics Control Act (MTCA) Method A and/or Method B cleanup levels (GeoEngineers 2001) applicable at that time.

Since that time, no other sources of contamination to groundwater have been found; however, based on the interpretation of historical and more recently collected (July 2007) groundwater analytical data, there appears to be several additional sources on the Breen Property that may be contributing to groundwater contamination. The exact locations have not been identified but may include the following:

- In the area of the wash-down pad

- In the area between Building B and Building C including:

    - The area upgradient of monitoring well MW-27

    - The Torpedo Tube area

- In the area surrounding Building B

These areas are shown in **Attachment 9**.

Wash-Down Pad and Surrounding Area

The wash-down pad, located near the southwest corner of the Breen Property, has been the subject of several investigations (GeoEngineers 2001, Farallon 2003). Based on historical accounts, waste from the

steam cleaning operation conducted at the wash-down pad was collected in an approximately 5-foot deep pit excavated adjacent to the pad, which has not been located to date. Up to 2,100 µg/L of PCE has been detected in MW-8 (screened in the lower zone of the shallow aquifer) immediately adjacent to the downgradient side of the wash-down pad. Even more suggestive of an active source separate from the HRIA, 2,400 µg/L PCE was found in groundwater sampled at 24 feet bgs in boring RS-7 and 1,500 µg/L in groundwater sampled at about 20 feet bgs in boring SG2-15, both located about 40 feet east of the wash-down pad. These concentrations are far higher than upper zone concentrations found in the "bottleneck" area 200 feet to the east, or in MW-29 (a shallow well located just 50 feet to the east), strongly suggesting a local source just upgradient of the wash-down pad.

Between Building B and Building C

Area Upgradient of MW-27:
The source of groundwater contamination in MW-27 is still not known. In 2003, PCE was detected in MW-27 at a maximum concentration of 1,500 µg/L. This well is screened in the lower zone of the shallow aquifer from 27 to 42 feet bgs. PCE was detected in RS-1, located upgradient and approximately 400 feet east of MW-27, at 260 µg/L at a depth of 30 feet bgs and at 84 µg/L at a depth of 46 feet bgs. Since that time, no sampling has been conducted immediately upgradient of MW-27 or in the area between MW-27 and RS-1. A 1969 aerial photograph of the Breen property shows a possible trench containing debris or drums roughly 100 feet east and upgradient of MW-27. The area containing this trench does not appear to have been part of the 2000 GeoPotential investigation, or a 1996 GeoRecon geophysical investigation conducted at the site.

A metal cover was observed in the area of MW-27 during the July 2007 sampling event. A second metal cover/plate was observed just north/northwest of the wash-down pad and south/southeast of Building C. What these objects are covering is unknown and will require further evaluation to determine if it could be associated with a potential source for groundwater contamination.

Building B

As stated above, a cleanup was conducted in 1999 under Building B to remove drums identified by a ground penetrating radar survey (GeoEngineers 2001). PCE was detected in air samples collected in November 2007 in and under the building. This may suggest a source of contamination to groundwater under or around Building B.

Other Potential Source Areas

Other potential sources may also exist at the Breen Property including a possible area upgradient of RS-6. There are several other areas of the site with PCE concentrations in groundwater exceeding 200 µg/L. This includes an area located south of the Livestock Auction Building in the southeast corner of the Breen Property (see **Attachment 9**). Although some soil and groundwater investigations were completed in the area of geophysical anomalies by Farallon (2003), no source for this contamination was identified. EVS modeling places significant amounts (>1,000 µg/L) of PCE in groundwater beneath the southeast end of the Livestock Auction Building, extending southeast to merge with contamination from the HRIA. Since no contamination source was found in this reach of Berwick Creek, the area of groundwater directly to the north was assumed to be mostly clean and has been mapped as such on the RI plume maps (RI Report Figures 4-6 and 4-7). In light of the contamination in the upper and lower zones of the shallow aquifer just downgradient of the building south of the Livestock Auction Building, as well as the geostatistical modeling results, this assumption needs to be tested.

Potentially Naturally Occurring Biodegradation

Natural biodegradation of PCE is apparent around Building B, particularly at the downgradient side of the building, based on DCE and vinyl chloride concentrations being higher than PCE concentrations. Understanding the reason for this may be useful in evaluating: 1) processes that may be limiting the migration of PCE originating from this area, 2) evaluating remedial options of the site, and 3) the presence of other COPCs (i.e., petroleum hydrocarbons) and the role they have in biodegrading PCE.

Soil Sampling

Based on review of historical data, soil samples collected for VOC analysis did not appear to have been collected and preserved using the protocols under EPA Method 5035A. The primary goal of this VOC collection and preservation technique is to minimize the direct volatilization of contaminants in soil to the atmosphere. Since EPA Method 5035A does not appear to have been utilized during soil sample collection, there is a strong possibility that VOC analytical results have been biased low, especially for samples collected from the gravelly materials that comprise the shallow aquifer.

7.2 Activities to Fill Gaps

In addition to the activities suggested under the Site-wide section of this report, the following activities are recommended for the Breen Property to fill the above gaps:

- Conduct a passive soil gas survey that covers most of the area generally between the Livestock Auction Building and Labree Road, and between Hamilton Road and Building A as a first level screening effort to evaluate potential contaminant source areas. Gore® or Beacon are examples of two passive soil gas module types that can be utilized in this type of survey.

- Conduct a geophysical investigation in areas not previously investigated (such as the 1969 trench area, area east of MW-27, the metal cover near MW-27, the metal cover north/northwest of the wash-down pad, the area surrounding the wash-down pad, and in areas identified by the passive soil gas survey) to attempt to locate potential sources.

- Conduct a subsurface investigation in the following areas and additional areas identified by the geophysical and soil gas survey investigations:

    - Around the wash-down pad and upgradient of the wash-down pad (area between the wash-down pad and RS-1)

    - Between Building B and Building C, and between RS-1 and MW-27, including the area of the 1969 trench

    - Around and upgradient of the Torpedo Tube

    - Surrounding Building B

    - Other areas identified by the passive soil gas survey and/or geophysical investigation described above, and areas containing geophysical anomalies that were not previously evaluated

- Install two to three additional monitoring wells in areas identified by the subsurface investigation.

- Install additional monitoring wells in the southeastern and central portions of the property to evaluate a potential northern migration pathway from the HRIA.

Soils analyses would include VOCs (with samples properly preserved per EPA Method 5035A) and petroleum hydrocarbons.

Since comprehensive groundwater monitoring has not been completed at the site since 2003, a current "snapshot" of groundwater conditions at the Breen Property is unknown. Additional area-wide groundwater sampling is necessary. Complete a round of groundwater sampling that would include newly installed wells and existing wells. Analysis would include VOCs, petroleum hydrocarbons, and metals. In addition, field monitored parameters should be measured and recorded for all wells during sampling. These parameters include: pH, temperature, oxidation reduction potential, specific conductivity, dissolved oxygen, turbidity, and ferrous iron (field test kit). Groundwater samples collected from the upper zone of the shallow aquifer should be analyzed for conventional chemistry parameters (sulfate/sulfide, nitrate/nitrite, alkalinity, chloride) and for methane, ethane, and ethene (detection limit 0.025 µ/L). Field monitored parameters, general chemistry, and methane/ethene/ethane analyses will be helpful in evaluating biodegradation processes.

Based on historical information, completing borings and sampling using DPT has been difficult. During the EE/CA sampling in 2003, the DPT rig was able to complete borings to approximately 30 feet bgs at a rate of 1 to 1.5 borings per day. The presence of gravelly soils resulted in damage to the DPT tools and rods and also led to poor sample recovery. A hollow-stem auger was also used for boring/well installation. The auger rig also experienced problems and a low production rate, but was able to complete borings/wells to the aquitard at 45 to 55 feet bgs. Because of the apparent boring depth limitation with the DPT, borings would most likely need to be completed using either hollow-stem auger or sonic drilling methods. Sonic drilling would likely be the most effective drilling method for completing borings through the sand and gravel aquifer at the Site. However, boring installation using DPT could be attempted to determine the applicability of this technology at the Site. Newer, heavier-duty DPT rigs may be available that could potentially complete boring to a greater depth and in less time than those used during earlier investigations at the Site.

Approximately 12 to 17 borings should be completed and samples of both soil and groundwater (at multiple elevations within the aquifer) should be collected. Four soil and four groundwater samples should be collected per boring. Groundwater samples should be collected at four different intervals in each boring: a shallow depth (the upper 5 feet of the aquifer), from approximately 15 to 25 feet bgs, from approximately 30 to 40 feet bgs, and a deep sample from approximately 40 feet bgs to the bottom of the aquifer (typically around 50 feet bgs). This will provide two samples from the upper zone (< 25 feet bgs) and two from the lower zone (> 25feet bgs) of the shallow aquifer.

8.0 THURMAN BERWICK CREEK AREA

The Thurman Berwick Creek Area is located immediately south of the Breen Property across North Hamilton Road. Based on review and analysis of available data, a source to groundwater contamination may exist in this area. Further discussion of this suspected groundwater source and recommended activities are discussed in the following sections.

8.1 Potential Sources of Contamination/Identified Data Gaps

PCE concentrations up to 3,740 µg/L have been detected in groundwater samples collected from private well PW-9, located in the area. There is no log for this well, so the screened interval is unknown. However, PCE has been detected in upper zone monitoring wells in this area at concentrations up to 2,700 µg/L and in lower zone monitoring wells up to 2,000 µg/L. No source for the high concentrations of PCE in groundwater detected in the Thurman Berwick Creek Area wells has been identified. These concentrations are higher than what can be attributed to the HRIA. A possible source for the

contamination includes a potential release to Berwick Creek where it turns south from the Breen Property. Such a release could have migrated through the creek bed and spread throughout the shallow aquifer. Alternatively, PCE disposal may have occurred in the area between the MW-22/23/24 well line and Berwick Creek (see **Attachment 10**).

PCE isoconcentration contour maps completed based on groundwater data for the Site show the 1,000 µg/L PCE contour from the HRIA in the lower zone of the shallow aquifer bifurcates into a northern and a southern lobe. The southern lobe does not appear to extend to the Thurman Berwick Creek Area, and little or no shallow contamination (less than 25 feet deep) from the HRIA extends to wells MW-22 or RS-19. This would indicate a potential local PCE source upgradient of PW-9 at or upgradient of Berwick Creek as indicated by high concentrations in upper zone wells MW-31 (2,300 µg/L) and MW-32 (2,700 µg/L), as well as in borings RS-31 (1,700 µg/L at 18 feet) and RS-33 (1,400 µg/L at 18.5 feet). These concentrations may be associated with an additional PCE release to Berwick Creek south of the Breen Property or migration of PCE contamination from another source within the Site. The PCE source for this groundwater contamination has not been identified.

Creek channel samples CC-1 through CC-9 were collected by Farallon (2004) from Berwick Creek south of the Breen Property. The samples were collected from the creek bed at approximately 1 foot bgs. Based on available sampling collection data, it is unclear whether these samples were collected from sediment accumulations in the creek channel or if the samples were collected into the silt layer that composes the creek bottom. Based on the creek bed sampling results for the HRIA (URS 2004), the PCE concentrations were mainly detected within the silt layer. Creek samples CC-1 through CC-9 may not represent the actual PCE concentrations in the Berwick Creek bed downstream of the Breen Property.

Based on review of historical data, soil samples collected in this area for VOC analysis did not appear to have been collected and preserved using the protocols under EPA Method 5035A. The primary goal of this VOC collection and preservation technique is to minimize the direct volatilization of contaminants in soil to the atmosphere. Since EPA Method 5035A does not appear to have been utilized during soil sample collection, there is a strong possibility that VOC analytical results have been biased low, especially for samples collected from the gravelly materials that comprise the shallow aquifer.

8.2 Activities to Fill Gaps

In addition to the activities suggested under the Site-wide section of this report, the following activities are recommended for the Thurman Berwick Creek Area to fill the above gaps:

- Conduct additional sampling of soil/sediment in Berwick Creek upstream between the North Hamilton Road bridge and RS-46, and downstream between North Hamilton Road bridge and Labree Road. To identify potential creek sources for groundwater contamination in this area, install 6 to 8 borings within Berwick Creek and collect two soil/sediment samples from each boring (with soil samples properly preserved per EPA Method 5035A). Borings should be completed into the silt layer comprising the creek bed.

- Complete a north-south boring transect running south from boring B-8 to a line running from MW-4 to MW-24. Collect soil and groundwater samples in the same manner as discussed for the “bottleneck” area and Breen Property borings.

9.0 DOWNGRADIENT AREA WEST OF LABREE ROAD

This area includes the downgradient portion of the groundwater plume west of the Breen Property and the Thurman Berwick Creek Area. Identified data gaps and recommended activities to fill these gaps are discussed in the following sections.

9.1 Extent of Groundwater PCE Contamination/Identified Data Gaps

The extent of the PCE groundwater plume downgradient of the Breen Property and the Thurman Berwick Creek Area west of Labree Road is unknown (**Attachment 1**). Currently, there are only two monitoring wells located in this area, MW-25 and MW-28, although two north-south transects (RS-20/RS-23 and RS-47/RS-49) of temporary borings with multilevel groundwater samples were installed within the downgradient plume in 2002 and 2004 (shown on **Attachment 1**). Borings in the more downgradient transect were not sampled in the upper zone of the shallow aquifer, so the downgradient extent of the plume in the upper zone is also unknown.

MW-25 is located approximately 2,000 feet downgradient of Labree Road, and was installed by the location of temporary boring RS-21. RS-21 was sampled at two different depths in the lower zone of the shallow aquifer and PCE ranged from 380 to 640 µg/L. Temporary boring RS-20, located 480 feet downgradient and sampled at similar depths contained PCE at 450 and 890 µg/L (highest of a triplicate sample). RS-20 and RS-21 were installed and sampled in 2002.

MW-25 is screened in the lower zone of the shallow aquifer and has been sampled four times between August 2002 and July 2007. PCE concentrations in the well have ranged from 760 µg/L in November 2002 to 600 µg/L in July 2007. PCE concentrations have been relatively stable between 2002 and 2007 and there is insufficient data to indicate a clear trend over time. It is unclear why MW-25 was located by RS-21 since RS-20 is another 480 feet downgradient of RS-21and has a similar PCE concentration.

MW-28 is approximately 4,000 feet downgradient of MW-25, and was installed by Dillenbaugh Creek at the east end of a transect of borings [RS-41/RS-43, all of which had consistently non-detect results (<0.2 µg/L) at all depths sampled]. MW-28 was sampled twice in 2003 for PCE. The results were non-detect (<0.2 µg/L) and 0.35 µg/L in September and November, respectively. During the July 2007 sampling, the well could not be sampled due to access issues. As a result, it is unknown how far the downgradient extent of the plume has advanced past MW-25 and RS-20 and if significant concentrations have reached MW-28, or if MW-28 is located directly downgradient of MW-25 and RS-20.

9.2 Source of Downgradient PCE Contamination/Identified Data Gaps

The groundwater contamination found at MW-25 appears to be related to the Breen Property and/or the Thurman Berwick Creek Area, and not significantly associated with the contamination migrating from the HRIA. This assessment is based on evaluation of sampling data and concentration trends analyses. It is also based on the apparent constraint in transport from the HRIA imposed by the “bottleneck” located upgradient of the Breen Property and Thurman Berwick Creek Area.

During completion of the EE/CA (URS 2004), the future fate and transport of PCE at the HRIA was evaluated using EPA’s screening tool Biochlor, Version 2.2. This model was used to estimate the maximum extent of the PCE plume downgradient of the HRIA in the absence of source control and to estimate the general effects of implementing source control. Model assumptions included the relative ages of the two sources (less than 20 years for the HRIA; approximately 40 years for the Breen Property), and the current understanding of the hydraulic properties of the aquifer which govern how fast the

groundwater and any associated contaminants can flow from these sources. Based on the results of the Biochlor analysis, the following conclusions were made:

- Assuming a 1990 release, the plume emanating from the HRIA would barely have reached MW-25 by 2002 (observed concentrations in MW-25 were at least 20 times what were predicted by the model and 100 times the predicted concentrations at RS-20).
- One or more sources located downgradient of the HRIA are contributing to the downgradient plume west of Labree Road; therefore, the majority of the downgradient portion of the groundwater plume west of Labree Road most likely originated from the Breen Property.

Evaluation of sampling data and concentration trends analyses appears to confirm the results of the Biochlor model regarding the extent of the higher concentration portion of the HRIA plume. During the first three groundwater sampling rounds in 2002/2003, MW-23 and MW-24, located downgradient of the HRIA, south of the Breen Property and upgradient of the Thurman Berwick Creek Area, showed generally consistent PCE concentrations. In late 2003, PCE concentrations increased at both wells. In July 2007, PCE concentrations had increased further in MW-23, and had restabilized at MW-24. MW-4, which is located downgradient of MW-23 and MW-24, has also shown an increase in PCE concentrations with time. The concentration at this well showed a sharp increase in 2001 followed by a steady decrease in concentration then an increase between late 2003 and 2007. PCE isoconcentration contour maps based on 2007 groundwater data show that the 1,000 µg/L PCE contour from the HRIA has not yet reached Labree Road or even the Thurman Berwick Creek Area.

While the results of the Biochlor model indicated that the HRIA plume extended to MW-25, the model used a hydraulic gradient that is nearly double that observed over most of the site. Plume extent calculations using corrected gradients suggest that the plume limit ($\leq$5 µg/L) should occur at approximately 500 feet west of Labree Road, and that the majority of the groundwater contamination west of Labree Road is more likely attributable to the plume originating from the Breen Property and the Thurman Berwick Creek Area. Only the PCE contamination from the Breen Property appears to have existed long enough for associated contaminated groundwater to have reached MW-25 and RS-20. This conclusion is based on current understanding of aquifer hydraulic conductivity, a measure directly related to how fast groundwater can flow through an aquifer. These measurements have been made only at the Breen Property and HRIA and have been extrapolated throughout the plume area. This technical memorandum proposes collecting additional data to confirm that hydraulic conductivity is consistent throughout the Site.

PCE in private drinking water well PW-21, located along Rice Road, was non-detect (<0.02 µg/L) in 1999 and had a detection of 4 µg/L in 2001. The PCE concentration has subsequently been hovering slightly above and below 5 µg/L. Since this well is on the southern edge of the plume, it may record the arrival of contamination from the HRIA that was pulled south by a pumping production well located south of the Thurman Berwick Creek Area or it may be associated with another potential source located upgradient. Additional evaluation is necessary to assess whether the PCE detected in PW-21 is from the HRIA. If it is, then the assumption that HRIA disposal occurred around 1990 is not supported. It would suggest that disposal occurred sometime in the 1970s. If this is the case, then the HRIA contribution to contamination in the lower portion of the plume downgradient of Labree Road may extend considerably further downgradient than estimated above. However, the proportion attributable to the HRIA would be limited to the mass flux from the “bottleneck” area, well under half of the PCE mass found in the lower zone of the shallow aquifer (below 25 feet) and none of the PCE in the upper zone.

As stated previously, a possible source for the contamination identified in the Thurman Berwick Creek Area includes a potential release to Berwick Creek south of the Breen Property. If a release did occur, it

is unknown how far the released contaminant migrated along the creek and where deposition occurred. The vertical extent of impact to creek bed soil/sediment should be assessed.

9.3 Groundwater/Surface Water Interaction/Identified Data Gaps

The results of sampling in July 2007 showed that PCE in groundwater is potentially being discharged to surface water in Dillenbaugh Creek near MW-25. It is not understood how this discharge to the creek is impacting the plume migration (i.e., is the majority of the PCE plume discharging to the creek or continuing down the valley?). If discharge to Dillenbaugh Creek is controlling the migration of the plume, it may discharge more directly to the creek where the creek bends to the west between MW-25 and MW-28. There is also a potential for additional groundwater discharge points in Berwick Creek between Labree Road and the confluence with Dillenbaugh Creek.

9.4 Activities to Fill Gaps

In addition to the activities suggested under the Site-wide section of this report, the following activities are recommended for the downgradient area west of Labree Road:

- Install two monitoring wells along the plume axis downgradient of the Breen Property between Labree Road and MW-25. Results of groundwater sampling for transect of soil borings (RS-47, RS-48, and RS-49) completed by Farallon in 2004 should be used for placement of one well. A second transect consisting of three soil borings between the RS-47/RS-49 transect and MW-25 should also be installed for placement of the second well.

- Install three to four monitoring wells downgradient of MW-25 along the approximate plume axis. For determining well placement, install soil borings along three to four transects perpendicular to the assumed plume axis between Rice Road and Dillenbaugh Creek. Each transect would consist of three to four borings. Proposed well locations should include between MW-25 and the suspected “leading edge” of the plume, at or near the “leading edge” of the plume, and between the “leading edge” and at a downgradient point(s) where the PCE concentration is undetectable. Groundwater samples would be collected at four different intervals in each boring: a shallow interval (upper 5 feet of aquifer), from approximately 15 to 25 feet bgs, from approximately 30 to 40 feet bgs, and a deep sample from approximately 40 feet bgs to the bottom of the aquifer (typically around 50 feet bgs).

- Install two additional borings to the north between RS-47 and I-5 and collect soil and groundwater samples to assess the extent of the plume from the Breen Property.

- Install two additional borings in the high-uncertainty area identified in the EVS modeling to the south of RS-49 and collect soil and groundwater samples to assess the extent of the apparent plume from the Thurman Berwick Creek Area and to better assess the portion of the plume upgradient of PW-21.

- Collect surface water samples at 10 to 12 locations in Dillenbaugh and Berwick Creek between Labree Road and MW-28. This sampling should be conducted in the dry and wet seasons to assess seasonal effects on concentrations related to changes in groundwater table elevation and changes in creek flow volume. In addition, collect generally co-located groundwater samples along the west side of this reach of Dillenbaugh Creek to evaluate the concentrations of PCE in groundwater potentially being discharged. This could be conducted using borings along the bank or more innovative approaches, such as phytoscreening (i.e., coring samples from mature trees along the creek bank) (Sorek 2008).

- Depending upon the results of the soil/sediment sampling in the Thurman Berwick Creek Area, install four to six borings in Berwick Creek between Labree Road and the confluence with Dillenbaugh Creek and collect two soil/sediment samples from each boring. At least one boring should be located where Berwick Creek crosses the plume centerline. Samples should be collected from the silt layer comprising the creek bed, as opposed to the recently deposited sediment.

As described in Section 6, an alternative investigative methodology to consider as a precursor and to further focus the investigations described above is the use of down-hole subsurface profile technologies (HPT, MIP, EC) prior to boring/monitoring well installations.

8.0 SUMMARY OF DATA GAPS AND RECOMMENDED INVESTIGATION

A summary of the identified data gaps and recommended investigations to “fill” these gaps is presented in the table on the following page.

Summary of Data Gaps and Recommended Investigations

Area	Identified Data Gaps	Recommended Investigations
Site Wide	• The hydraulic conductivity for the aquifer at the Site requires further evaluation, especially in downgradient areas and in the "bottleneck" area. • Aquifer characteristics, such as porosity (total/effective), vertical/horizontal gradients and anisotropy should be determined for the downgradient areas to assist in plume modeling and migration assessment. • The vertical distribution of PCE in groundwater requires further assessment. Information on the vertical distribution of PCE in the area downgradient and west of Labree Road is limited as is the information for the "bottleneck" area between the HRIA and the Thurman/Berwick Creek area. Collection of additional groundwater samples at various depth intervals within the shallow aquifer is needed. • A better understanding of the depth intervals represented by samples from private wells is needed for mapping or modeling data obtained from these locations. • The deep aquifer has never been specifically characterized and no monitoring wells have been screened within it. The data is too limited to conclude that the deep aquifer has not been impacted. • Site-wide groundwater models should be revised based collection of new chemical and physical data. • The impact of production wells currently and formerly in use within a 4-mile radius of the source areas needs to be evaluated to determine any influences on plume migration. • A stable isotope study should be conducted to attempt to distinguish between the PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek area. • Air sampling is recommended following completion of remedial action at the HRIA to assess changing conditions resulting from the action. • Evaluation of petroleum hydrocarbons is needed based on results from the baseline risk assessment • Metals evaluation is needed.	• Conduct aquifer testing in the area downgradient and west of Labree Road and downgradient of the United Rentals facility. Aquifer testing west of Labree Road would be completed using existing well MW-25 and the new monitoring wells, discussed earlier in this memo. Testing would be conducted on multiple wells to provide adequate spatial distribution of hydraulic conductivity in the downgradient area. • Evaluate horizontal and vertical hydraulic gradients Site-wide in and between the upper and lower zones of the shallow aquifer and assess seasonal gradient shifts in direction by collecting comprehensive gradient data at least quarterly for one year. • Evaluate depth-discrete variations in hydraulic conductivities and preferential pathways associated with relatively higher-conductivity stratigraphic layers within the shallow aquifer by conducting aquifer testing within temporary boreholes and completed wells screened at discrete depths within the aquifer. Include findings in numeric and 3D EVS modeling. • Collect soil core samples for analysis of porosity, density, and grain size analysis. Collect core samples from up to two borings and at several depth intervals in the area downgradient and west of Labree Road. • Additional assessment and mapping of the site-wide vertical distribution of PCE in groundwater. • Evaluate the relative contribution of the HRIA, Breen Property and/or Thurman Berwick Creek Area contaminant sources on contaminant mass loading to the Site-wide contaminant plume by evaluating mass discharge of contaminants from proposed transects. • Install shallow piezometers within the stream bed along Berwick and Dillenbaugh Creeks to measure head differences between the surface water of the creek and the groundwater within the bed/or slightly below the bed of the creek in order to determine if and where groundwater may be discharging to the creeks. • Sound the depth of private wells with no logs that are located within the plume. • Install monitoring wells screened in the deep aquifer within the HRIA, Breen Property and Thurman Berwick Creek Areas to determine if it has been impacted by migration of contamination from the shallow aquifer.

(Table Continues)

Summary of Data Gaps and Recommended Investigations (Continued)

Area	Identified Data Gaps	Recommended Investigations
Site Wide (Continued)	• Evaluation of SVOCs and pesticides is needed especially in source areas.	• Update site-wide EVS modeling using newly acquired Site chemical and physical data discussed in other sections of this technical memorandum. Update three-dimensional modeling using the newly collected aquifer parameters. • Characterize production well influences on plume through analytical and/or numerical modeling efforts. This information can be used to determine if institutional controls may be needed to maintain protection of existing potable water supplies. • Conduct a stable isotope study to distinguish between PCE from the HRIA, the Breen Property, and the Thurman Berwick Creek area. • Conduct additional indoor and ambient air sampling following completion of remedial action at the HRIA. • Analyze samples for petroleum hydrocarbons. • Analyze samples for metals. • Analyze select samples for SVOCs and pesticides particularly samples collected in source areas.
HRIA	• Additional soil sampling may be required to validate what VOCs and other contaminants are present and at what concentration for the purpose of remedial design. • Surface water requires additional characterization, particularly in the section of Berwick Creek between MW-R4 and MW-33 (see Attachment 7, Figure 2-1). • The quality of soil/sediment in this section of Berwick Creek should also be collected to assess if other potential PCE sources exist in the creek channel. • The MW-600 series wells installed in 2003 for the EE/CA are fully screened through the shallow aquifer and were supposed to be decommissioned if not used as groundwater extraction wells. They have since sat unused, which may have resulted in vertical migration of contaminants within the aquifer.	• Pre-remedial design soil sampling to validate what VOCs and other contaminants (such as petroleum hydrocarbons which were identified during completion of the baseline risk assessment as requiring further evaluation) are present and at what concentration. The need for this investigation would be assessed once a remedial alternative is selected and prior to remedial design. Soil samples to be collected using the protocols specified under EPA Method 5035A. • Collect surface water samples at 6 to 8 locations in Berwick Creek, in the section of creek between roughly MW-R4 and MW-33. No surface water sampling appears to have been collected within this reach. • Collect soil/sediment samples in the section of Berwick Creek between roughly MW-R4 and MW-33. Install four to six borings within Berwick Creek and collect two soil/sediment samples from each boring. Borings should be completed into the silt layer comprising the creek bed. • Collect depth-specific groundwater samples from the MW-600 series wells. If results indicate significant downward migration of contamination, these wells should be abandoned.

(Table Continues)

Summary of Data Gaps and Recommended Investigations (Continued)

Area	Identified Data Gaps	Recommended Investigations
Mass Transfer Bottleneck	• A north-south zone located between the HRIA and Thurman Berwick Creek area was identified during EVS modeling. This zone is located east of where North Hamilton Road crosses Berwick Creek and appears to act as a PCE transport "bottleneck," preventing significant amounts of PCE from reaching the Breen Property and the Thurman Berwick Creek area. • Limited groundwater and soil data is available in an area upgradient of the "bottleneck" and just west of the HRIA. Only a couple sampling points (B6 and B7) have been installed between monitoring well MW-3 and MW-22/MW-23. Additional data is necessary in this area to fill the data gaps related to the shallow and deep contamination in the shallow aquifer and to provide additional data for evaluating the "bottleneck."	• Complete one to two north-south boring transect(s) between MW-3 and MW-22/23. The boring transect(s) should consist of three to four borings and extend north to roughly Berwick Creek and south to the area east of RS-24. Groundwater samples would be collected from four different intervals in each boring: approximately 5 feet bgs, from 15 to 25 feet bgs, from 30 to 40 feet bgs, and from 40 feet to the base of the aquifer, typically at 50 feet bgs . • Install two borings to define the north and south ends of the "bottleneck" and two additional borings between MW-24 and RS-24. Groundwater sampling would be completed at the same intervals as discussed in the previous bullet. • Install two to three centerline borings in both the northern and southern plume lobes as needed to fill in between north-south transects. These should extend as far as the Breen wash-down pad for the northern plume lobe and to Labree Road for the southern plume lobe. • Install a transect extending east and west from the HRIA source area containing DNAPL (Southeastern Hot Spot) to the Thurman Berwick Creek Area. Collect lithologic information and aquifer parameters as discussed in the Site-wide section. Collect groundwater samples for the same intervals noted above. Use information from this transect to prepare a cross-section identifying conditions from the HRIA, through the "bottleneck", and to the Thurman Berwick Creek Area.

(Table Continues)

Summary of Data Gaps and Recommended Investigations (Continued)

Area	Identified Data Gaps	Recommended Investigations
Breen Property	• Only one source (Building B drum cache) has been identified; however, based on the interpretation of historical and recently collected groundwater analytical data there appears to be several additional areas of contamination still active on the Breen Property that are contributing to groundwater contamination. • Comprehensive groundwater monitoring has not been completed at the site since 2003; a current "snapshot" of groundwater conditions at the Breen Property is unknown. Additional area-wide groundwater sampling is necessary. • Based on review of historical data, soil samples collected for VOC analysis did not appears to have been collected, preserved, and analyzed using the protocols under EPA Method 5035A.	• Conduct a passive soil gas survey that covers most of the area generally between the Livestock Auction Building and Labree Road, and between Hamilton Road and Building A as a first level screening effort to evaluate potential contaminant source areas. • Conduct a geophysical investigation in areas not previously investigated (such as the 1969 trench area, area east of MW-27, metal cover near MW-27, metal cover north/northwest of the wash-down pad, and area surrounding the wash-down pad) to attempt to locate potential sources. • Conduct a subsurface investigation in the areas identified below. Advance approximately 12 to 17 borings. Collect four soil and four groundwater samples from each boring at the intervals discussed in previous sections. Areas to be investigated include: o In the area of the wash-down pad and upgradient area (to RS-1) o In the area between Buildings B and C and between MW-27 and RS-1 o In the area of the Torpedo Tube o Surrounding Building B o Other areas identified by the passive soil gas survey and/or geophysical investigation described above, and areas containing geophysical anomalies that were not previously evaluated • Analysis would include VOCs (collected and analyzed per EPA Method 5035A), petroleum hydrocarbons, and metals. • Install two to three additional monitoring wells in areas identified by the subsurface investigation. • Install monitoring wells in the southeast and central portion of the site to assess the potential migration pathway from the HRIA. • Complete a round of groundwater sampling that would include newly installed wells and existing wells. Analysis would include VOCs, petroleum hydrocarbons, and metals. Groundwater samples collected from the upper zone would be analyzed for conventional chemistry parameters (sulfate/sulfide, nitrate/nitrite, alkalinity, chloride), and methane, ethane, and ethane to assess biodegradation processes.

(Table Continues)

Summary of Data Gaps and Recommended Investigations (Continued)

Area	Identified Data Gaps	Recommended Investigations
Thurman Berwick Creek Area	• No source for the concentrations of PCE in groundwater detected in the Thurman Berwick Creek area wells has been identified. A possible source for the contamination includes a potential release to Berwick Creek south of the Breen Property. • Based on review of historical data, soil samples collected for VOC analysis did not appears to have been preserved using the protocols under EPA Method 5035A.	• Conduct additional sampling of soil/sediment in Berwick Creek upstream between the North Hamilton Road bridge and RS-46, and downstream between North Hamilton Road bridge and Labree Road. Install 6 to 8 borings within Berwick Creek and collect two soil/sediment samples from each boring. Borings should be completed into the silt layer comprising the creek bed, and soil sampled should be preserved per EPA Method 5035A. • Complete a north-south transect running south from boring B-8 to a line running from MW-4 to MW-24. Collect soil and groundwater samples in the same manner as discussed for the “bottleneck” area and Breen Property borings.

(Table Continues)

Summary of Data Gaps and Recommended Investigations (Continued)

Area	Identified Data Gaps	Recommended Investigations
Downgradient Plume West of Labree Road	• The extent of the PCE groundwater plume downgradient of the Breen Property and the Thurman Berwick Creek area west of Labree Road is unknown. • PCE has been detected in PW-21, located on the southern edge of the plume. It may record the arrival of contamination from the HRIA that was pulled south by a pumping production well located south of the Thurman Berwick Creek area or it may be associated with another potential source located upgradient. Additional evaluation is necessary to assess whether the PCE detected in PW-21 is from the HRIA. • The results of sampling in July 2007 showed that PCE in groundwater is potentially being discharged to surface water in Dillenbaugh Creek near MW-25. It is not understood how this discharge to the Creek is impacting the plume. There is also a potential for additional groundwater discharge points in Berwick Creek between Labree Road and the confluence with Dillenbaugh Creek. • A possible source for the contamination identified in the Thurman Berwick Creek area includes a potential release to Berwick Creek south of the Breen Property. If a release did occur, it is unknown how far the released contaminant migrated along the creek and where deposition occurred. The vertical extent of impact to creek bed soil/sediment should be assessed.	• Install two monitoring wells along the plume axis downgradient of the Breen Property between Labree Road and MW-25. Results of groundwater sampling for transect of soil borings (RS-47, RS-48, and RS-49) completed by Farallon in 2004 should be used for placement of one well. A second transect consisting of three soil borings between the RS-47/RS-49 transect and MW-25 should also be installed for placement of the second well. • Install three to four monitoring wells downgradient of MW-25 along the approximate plume axis. For determining well placement, install soil borings along three to four transects perpendicular to the assumed plume axis between Rice Road and Dillenbaugh Creek. Each transect would consist of three to four borings. Groundwater samples would be collected at four different intervals in each boring: approximately 5 feet bgs, from 15 to 25 feet bgs, from 30 to 40 feet bgs, and from 40 feet to the base of the aquifer, typically at 50 feet bgs Proposed well locations should include between MW-25 and the suspected “leading edge” of the plume, at or near the “leading edge” of the plume, and between the “leading edge” and at a downgradient point(s) where the PCE concentration is undetectable. • Advance two additional borings to the north between RS-47 and I-5 to assess the extent of the plume from the Breen Property. • Advance two additional borings to the south of RS-49 to assess the extent of the apparent plume from the Thurman Berwick Creek area and to better assess the portion of the plume upgradient of PW-21. • Collect surface water samples at 10 to 12 locations in Dillenbaugh and Berwick Creek between Labree Road and MW-28. This sampling should be conducted in the dry and wet seasons to assess seasonal effects on concentrations related to changes in groundwater table elevation and changes in creek flow volume. In addition, collect generally co-located groundwater samples along the west side of this reach of Dillenbaugh Creek to evaluate the concentrations of groundwater potentially being discharged. This could be conducted using borings along the bank or more innovative approaches, such as phytoscreening, (i.e., coring samples from mature trees along the creek bank) (Sorek 2008). • Install four to six borings in Berwick Creek between Labree Road and the confluence with Dillenbaugh Creek and collect two soil/sediment samples from each boring. Borings should be completed into the silt layer comprising the creek bed.

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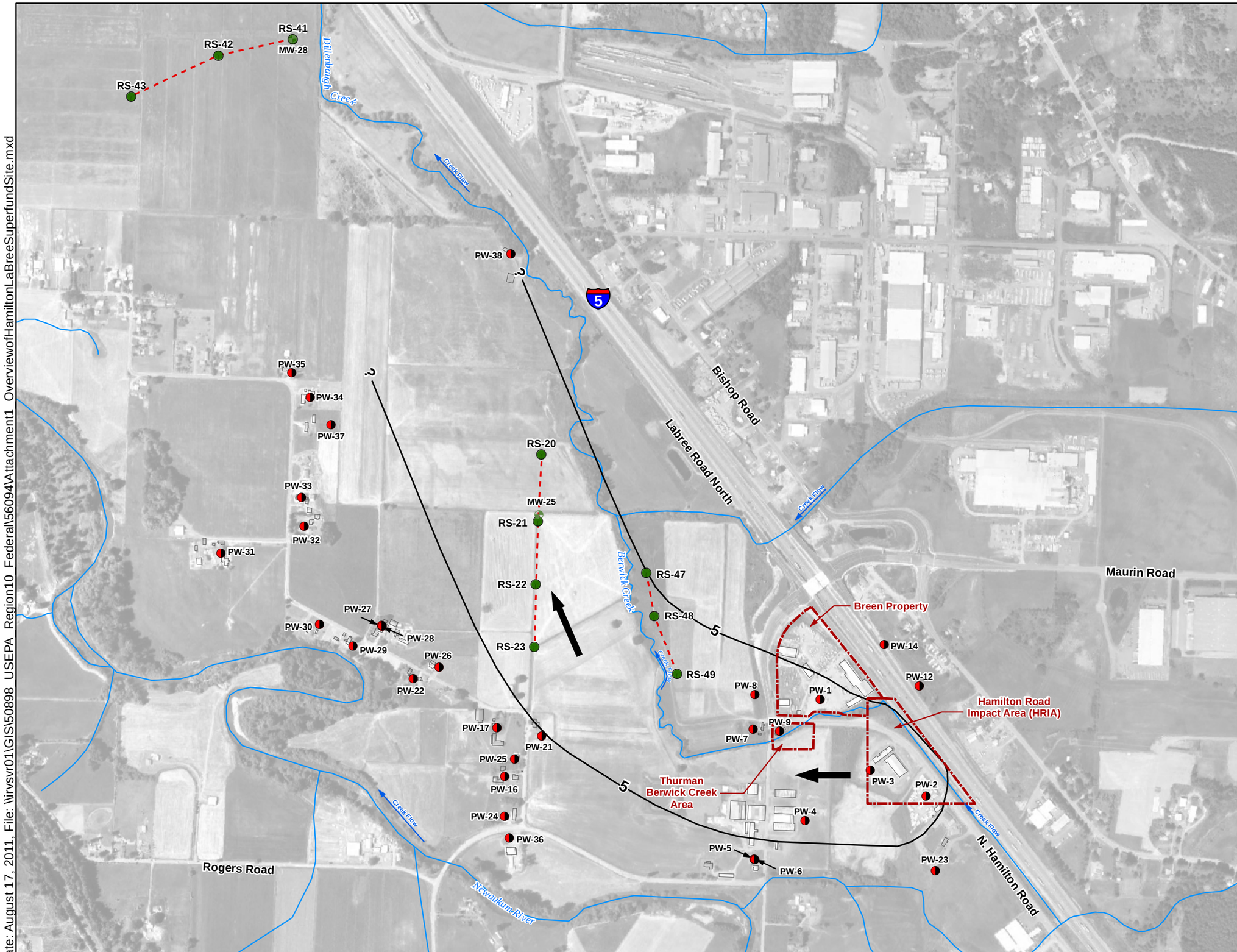
ATTACHMENT 1

Site Map



Legend

- Project Site Boundary
- Estimated PCE Concentration Boundary (Dashed Where Inferred - Contour Values in ug/L)
- Transect
- Creek Flow Direction
- Groundwater Flow Direction
- Monitoring Well
- Private Well
- Reconnaissance Boring

N

750 0 750
Feet

Sources:
1. Paramatrix (March, 2010)
2. Ecology and Environment, Inc. 2002]
Image from © 2011 Google™

Attachment 1
Overview of Hamilton/Labree Superfund Site

EPA REGION 10

Hamilton / Labree Roads Superfund Site

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ATTACHMENT 2

Historical Investigations and Key Findings Table

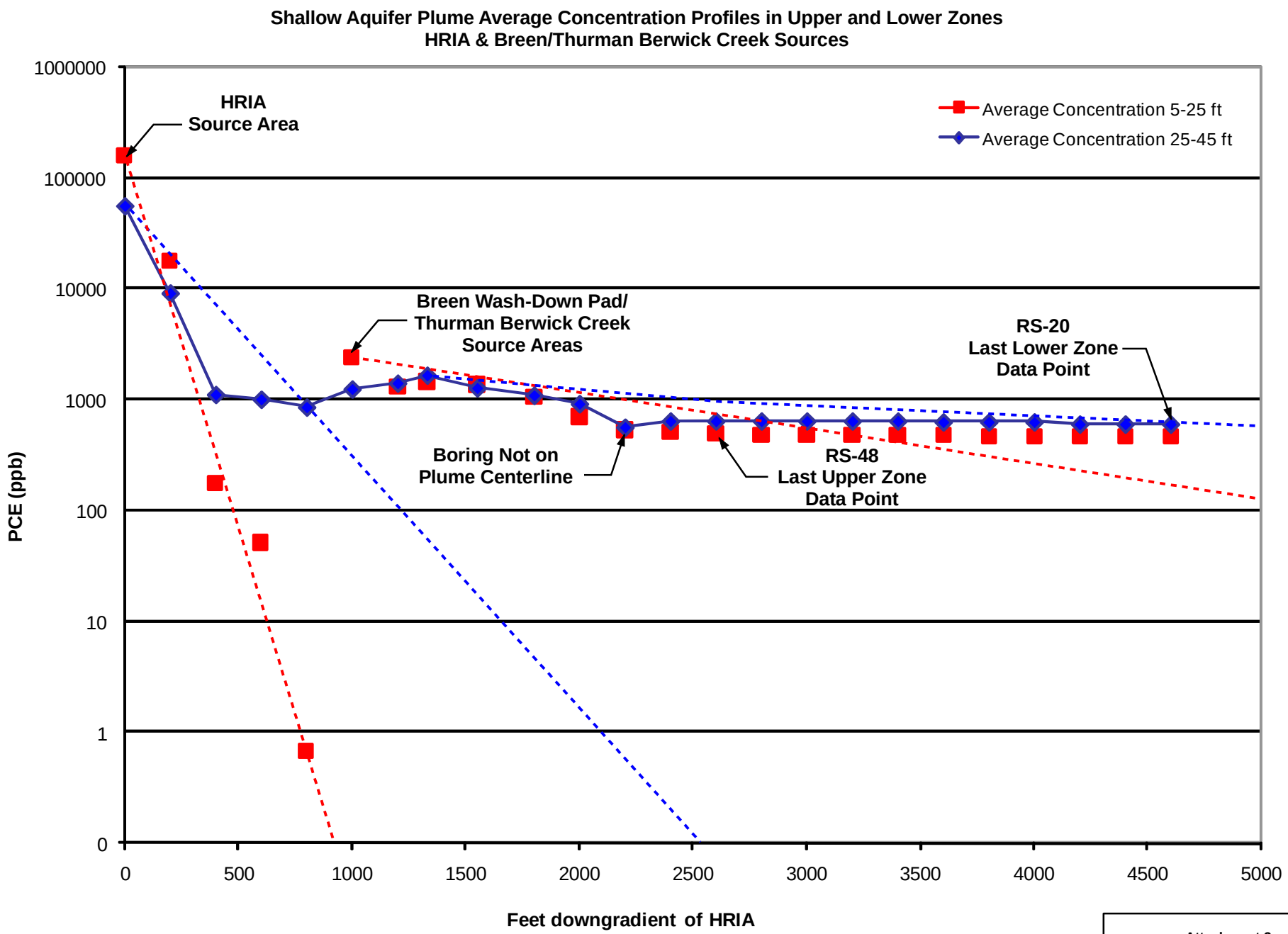
Attachment 2

Table 2-1. Historical Site Investigations and Key Findings

Date Range	Investigated by	Scope of Investigation	Key Findings	References
1993-1994	Washington State Department of Health (WDOH)	Sampled 18 private water-supply wells in the Hamilton/Labree Roads area.	Tetrachloroethylene (PCE) detected in 6 wells screened in the shallow aquifer	Ecology 1999b
1996	WDOH	Re-sampled 5 of 6 wells previously exhibiting PCE.	Slight increase in PCE concentrations from 1993-1994 sampling event	Ecology 1999b
1996	Geo-Recon and SAIC (for Washington Department of Ecology [Ecology])	Geophysical reconnaissance investigation on the Breen property for sources, sampled private water-supply wells, and installed monitoring wells in the upper aquifer.	Some geophysical anomalies detected, but no obvious cache of buried drums. PCE concentrations have ranged from 500 to 1,350 micrograms per liter (µg/L) in MW-3 and 2.4 to 7 µg/L in MW-5.	SAIC 1997 and Geo-Recon 1996
1997-2001	Ecology	Quarterly sampling of monitoring wells and private water-supply wells. Installed 7 wells intended for monitoring and remediation, all within the HRIA study area. Sampling of surface water in Berwick Creek.	Generated data for tracking of contaminant concentrations.	Ecology 2000; Ecology 1999b
1998	Transglobal Environmental Geosciences Northwest, Inc. [TEG] (for Ecology)	Sampled soil and groundwater from 28 temporary borings in the Hamilton/Labree Roads area.	Highest concentration of PCE in groundwater was 60,000 µg/L at location B2.	Ecology 1999a
1999	Northwest Geophysical Associates and GeoEngineers for Breen	Located and removed 70 drums and several small containers, and contaminated soil from beneath a building on the Breen property.	Buried drums were a source of PCE in groundwater.	GeoEngineers 2001
2000 – 2001	START contractor (Ecology and Environment, Inc.) for EPA	Four phases of work as part of a time-critical removal action. Installed and sampled temporary borings, monitoring wells, and combined monitoring and recovery wells. All temporary and permanent sampling locations assessed the shallow aquifer, with various sampling and screen depths. Evaluated removal action alternatives.	Implemented the alternative drinking water supply alternative, connecting affected residences and businesses to the City of Chehalis municipal water supply.	EPA 2000, 2001, 2002
2002	Farallon Consulting for Breen	Phase I investigation work for preparation of a site-wide remedial investigation/feasibility study. Within the HRIA study area, collected surface water from Berwick Creek and groundwater from existing monitoring and private water supply wells. Outside of HRIA study area, installed and sampled temporary borings and permanent monitoring wells, collected stream-bed soil samples from Berwick Creek, collected soil gas samples on Breen property.	To date, eliminated some potential sources areas on the Breen property from consideration. Added to understanding of distribution of PCE in soil and groundwater. Found greater downgradient extent of PCE in groundwater than previous investigations.	Farallon 2003
2003-2004	Response Action Contract (RAC) Contractor (URS Group) for EPA	Engineering evaluation/cost analysis investigation for HRIA study area. Performed geophysical survey to look for targets and characterize subsurface. Collected soil gas samples, stream bed and bank soil samples from Berwick Creek, sampled soil and groundwater from temporary Geoprobe borings to 30 feet below ground surface (bgs), sampled soil and groundwater from auger borings to 50 feet bgs, installed and sampled permanent monitoring wells, performed two constant-discharge aquifer performance tests.	Identified source as dumping to Berwick Creek. Delimited dense nonaqueous-phase liquid (DNAPL) zone and zone of highest PCE concentrations. Obtained soil, groundwater, and aquifer characteristics for screening and design of removal and remedial technologies. Installed wells for use in future remediation and monitoring.	URS 2004
2003-2004	Farallon Consulting	Collected soil, groundwater, and surface water data to support the Remedial Investigation/Feasibility Study (RI/FS) on the Breen property. Installed and sampled permanent monitoring wells, performed constant-discharge aquifer performance tests.	Discussed as part of this RI.	Farallon 2004, unreported
2007	Parametrix for EPA	Collected groundwater and surface water data to support and update the Draft Final RI/FS for the site.	Discussed as part of this RI.	Parametrix 2007
2007	EPA Emergency Response Team (ERT)	Collected indoor and ambient air samples in and around private residences and commercial buildings at the HRIA, Breen Property, and other locations at the Site.	Discussed as part of this RI.	EPA 2007

ATTACHMENT 3

Plume Profile Graph



Sources:
1. EPA (August, 2011)

Attachment 3
Plume Profile

EPA REGION 10

Hamilton / Labree Roads
Superfund Site

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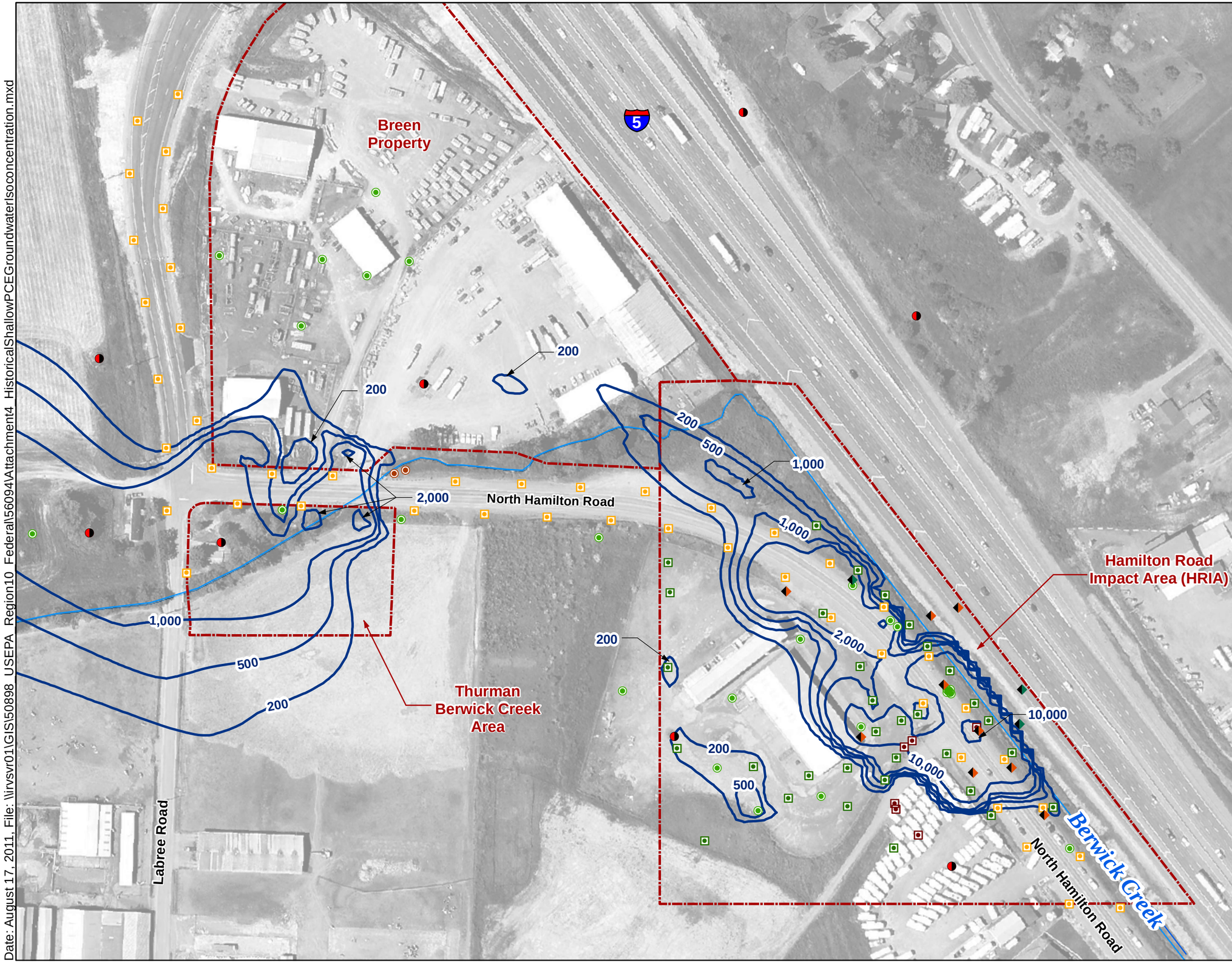
ATTACHMENTS 4 & 5

PCE Groundwater Plumes



Legend

- Project Site Boundary
- 500 — Historical Groundwater Shallow (<= 25 feet depth) for PCE Isoconcentration in ug/L
- Auger Boring
- Auger Boring
- Soil Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Reconnaissance Boring
- Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring

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Feet

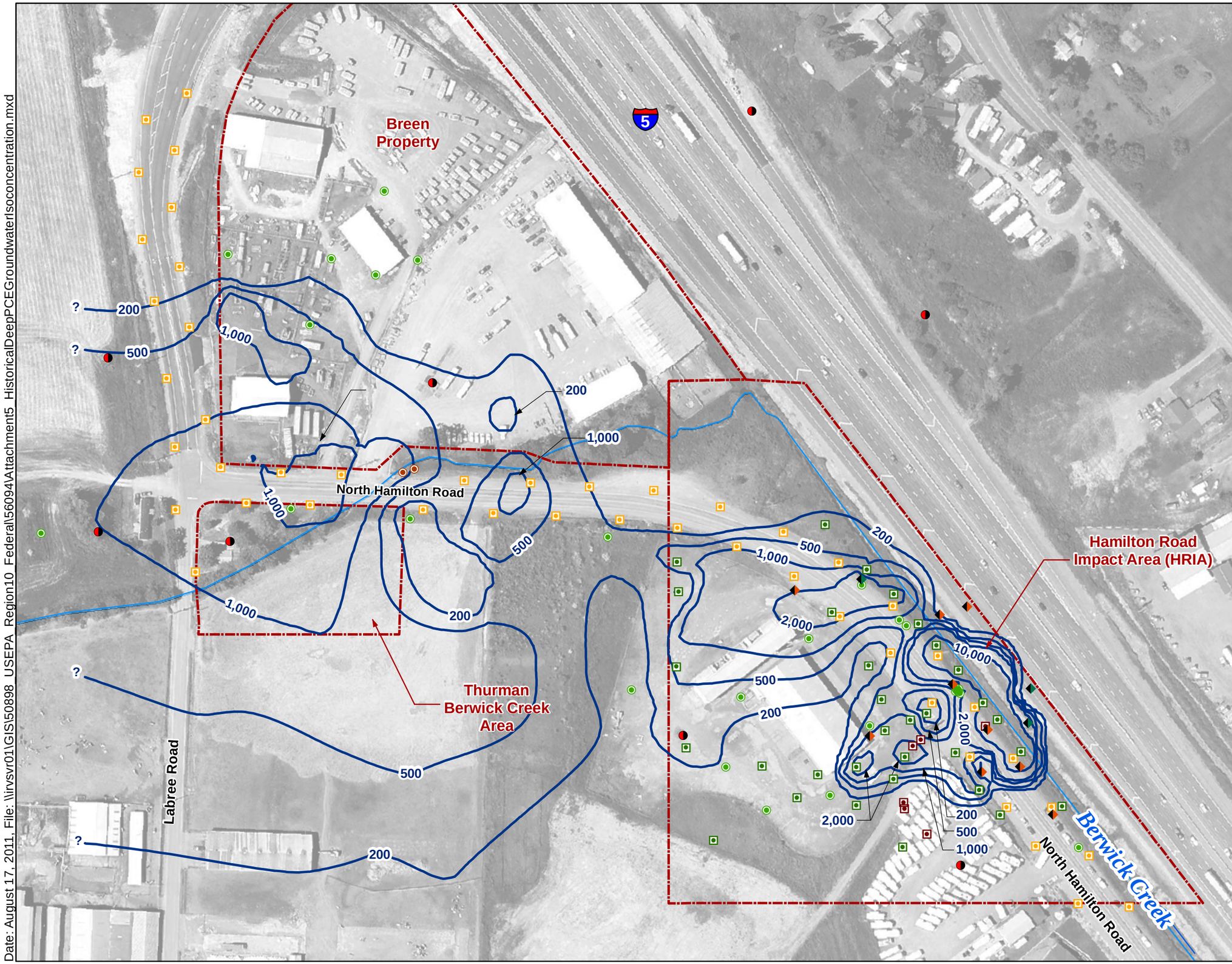
Note:
1. These plots represent straight interpolation of maximum PCE concentration data u sing the Natural Neighbor interpolation method.
2. Contours are based on maximum groundwater concentrations and do not represent a single time-specific sampling event.
3. Image from ©2011 Google™

Attachment 4
Hamilton / Labree Shallow
PCE Isoconcentration Plot
Historical

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 17, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Attachment4_HistoricalShallowPCEGroundwaterIsoconcentration.mxd



Legend

- Project Site Boundary
- 500 — Historical Groundwater Deep (> 25 feet depth) for PCE Isoconcentration in ug/L
- Auger Boring
- Auger Boring
- Soil Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Reconnaissance Boring
- Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring

N

150 0 150
Feet

Note:
1. These plots represent straight interpolation of maximum PCE concentration data u sing the Natural Neighbor interpolation method.
2. Contours are based on maximum groundwater concentrations and do not represent a single time-specific sampling event.
3. Image from ©2011 Google™

Attachment 5
Hamilton / Labree Deep
PCE Isoconcentration Plot
Historical

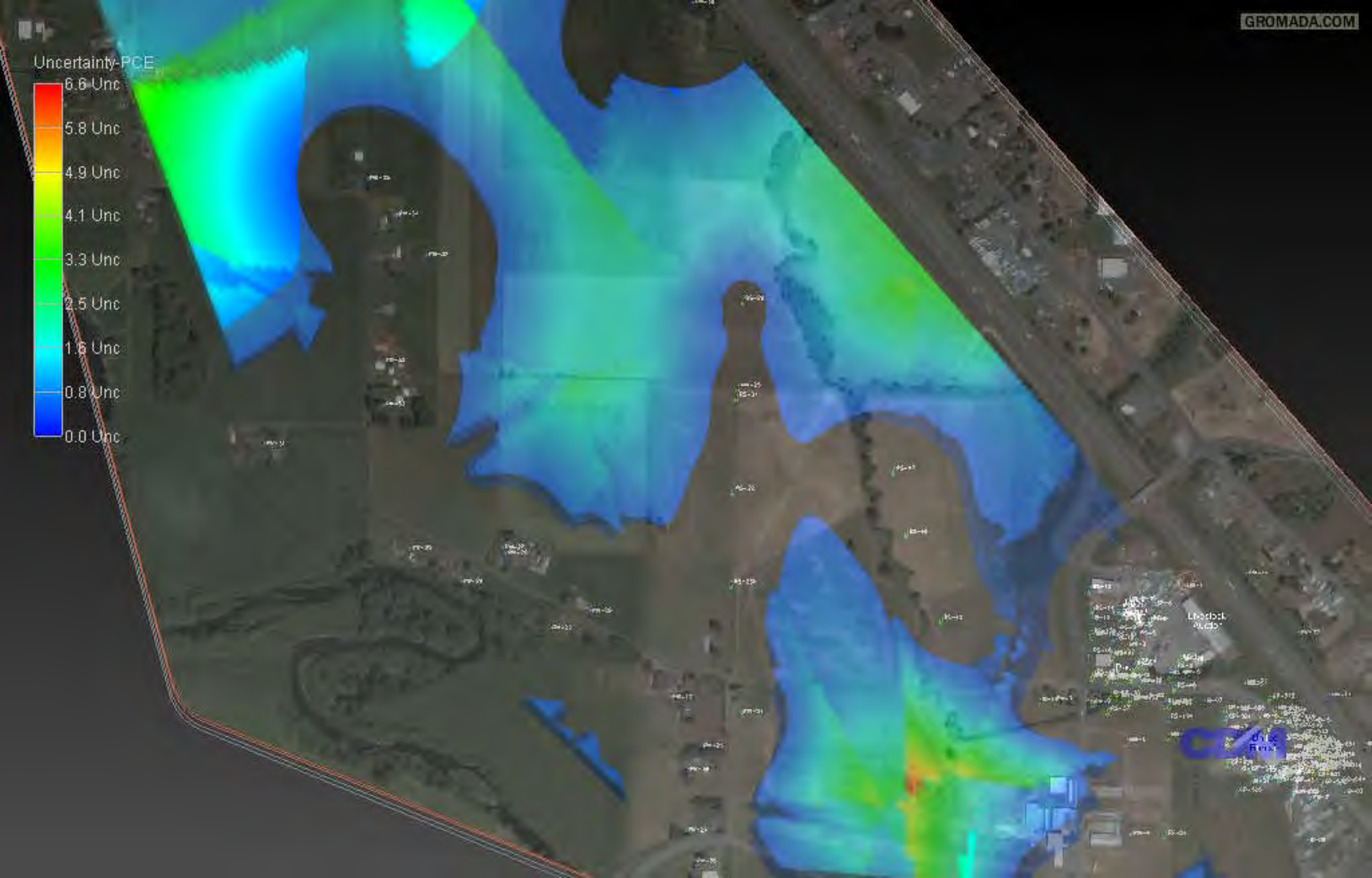
EPA REGION 10

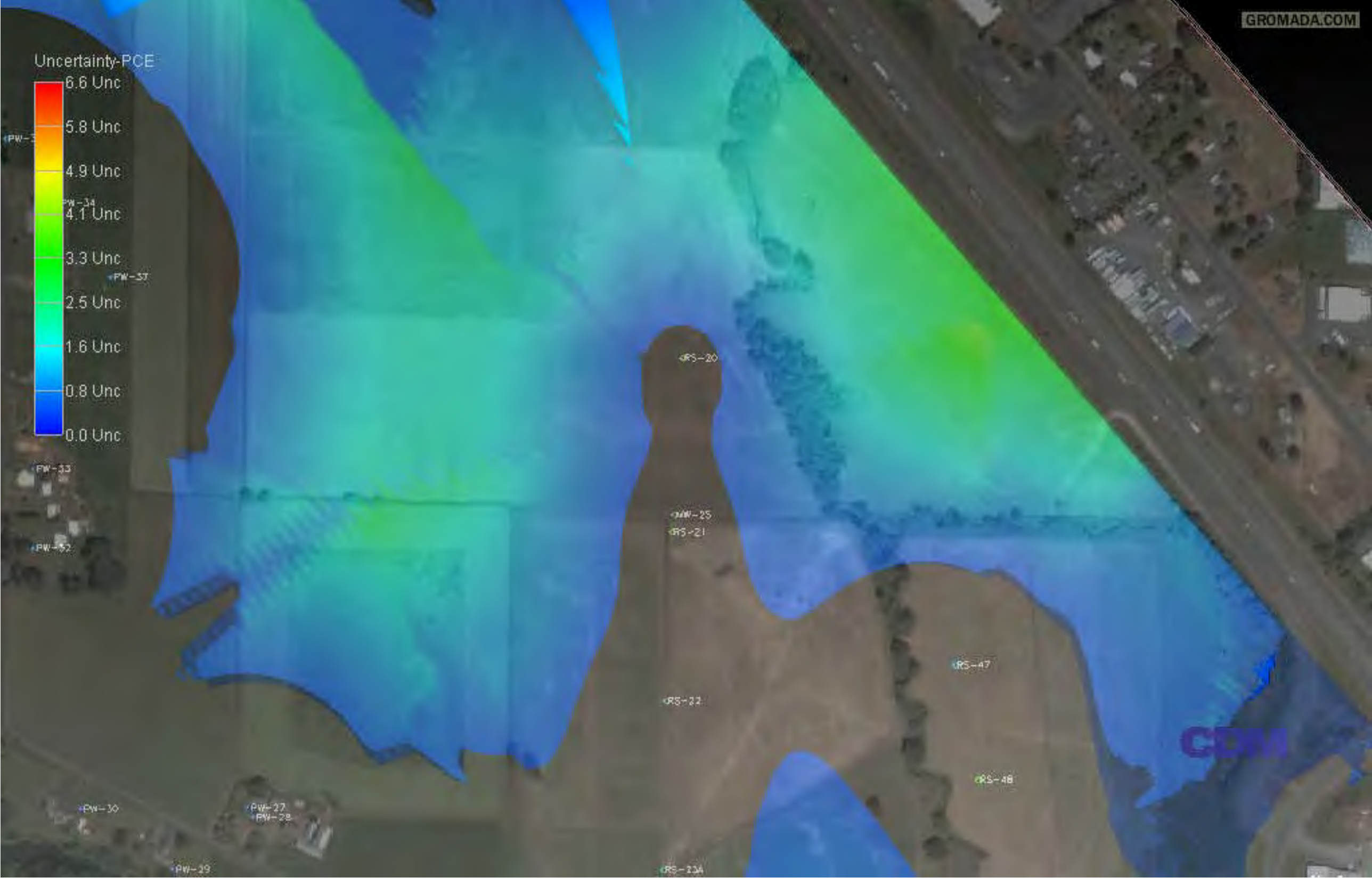
Hamilton / Labree Roads Superfund Site

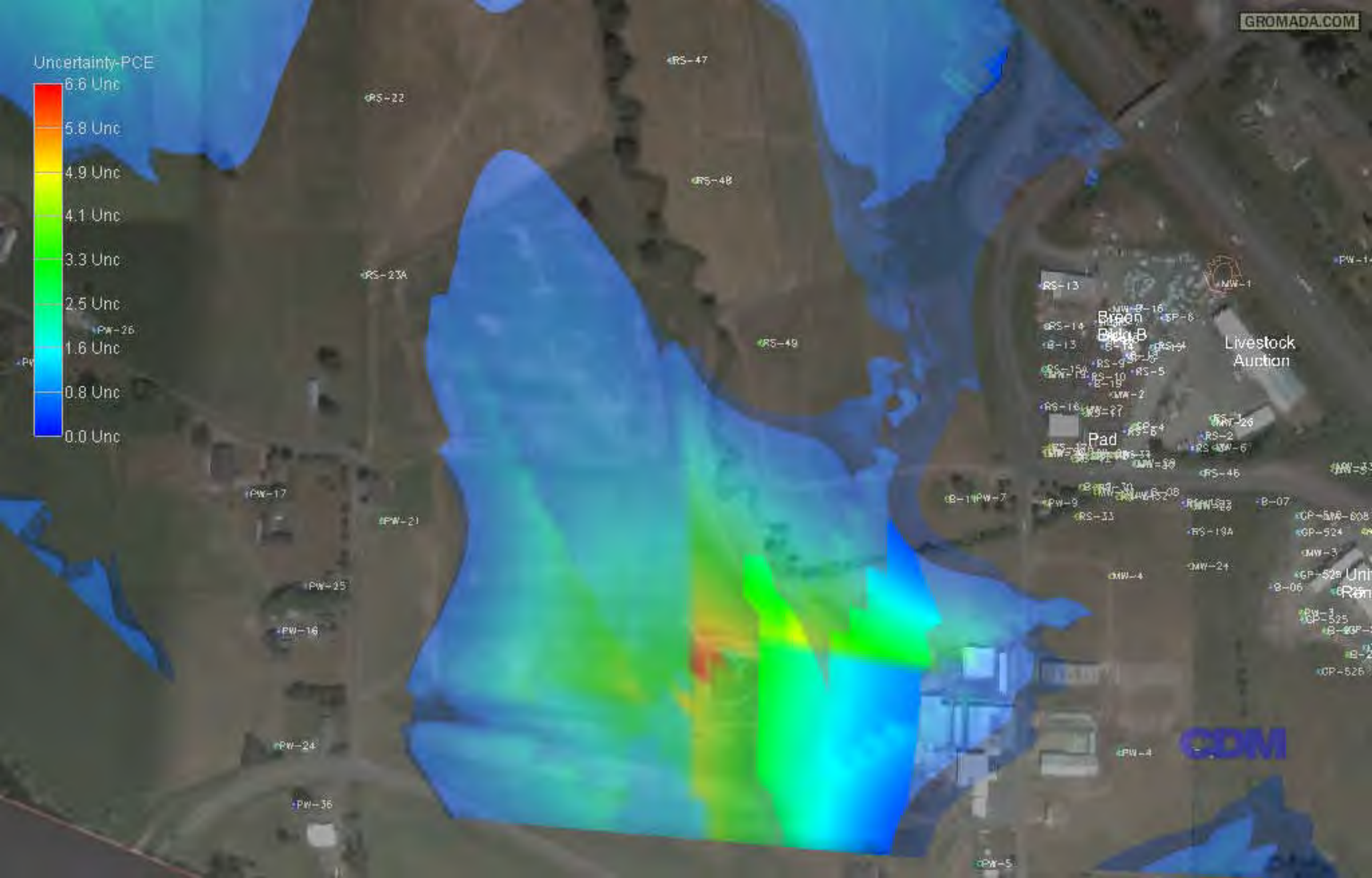
Date: August 17, 2011, File: \\irvsvr01\GIS\50898 USEPA Region10 Federal\56094\Attachment5_HistoricalDeepPCEGroundwaterIsoconcentration.mxd

ATTACHMENT 6

Uncertainty Plots

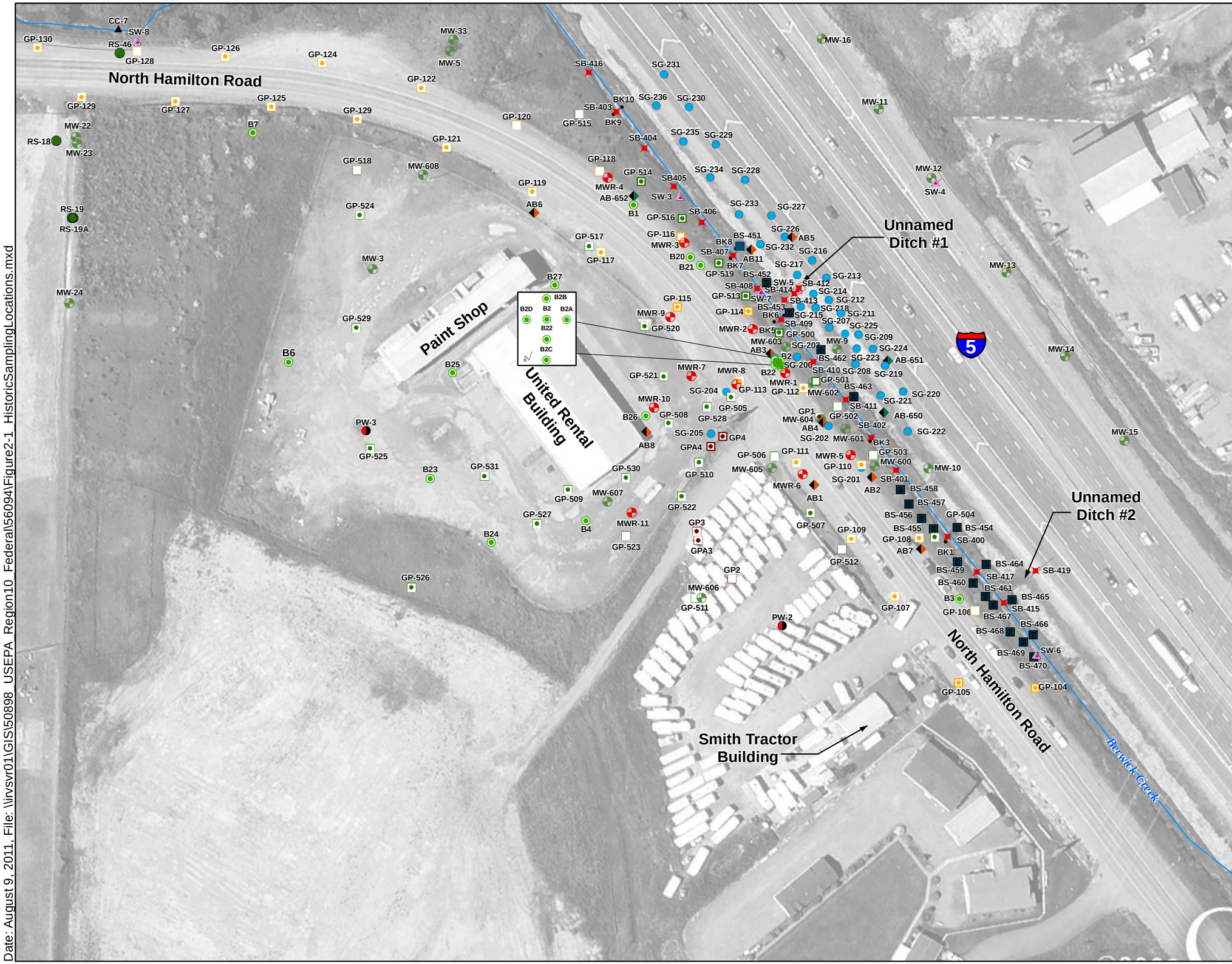

GROMADA.COM
Uncertainty-PCE
6.6 Unc
5.8 Unc
4.9 Unc
4.1 Unc
3.3 Unc
2.5 Unc
1.6 Unc
0.8 Unc
0.0 Unc


GROMADA.COM
Uncertainty-PCE
6.6 Unc
5.8 Unc
4.9 Unc
4.1 Unc
3.3 Unc
2.5 Unc
1.6 Unc
0.8 Unc
0.0 Unc
PW-34
PW-37
PW-33
PW-32
RS-20
PW-25
RS-21
RS-47
RS-22
RS-48
PW-30
PW-27
PW-28
PW-29
RS-23A


GROMADA.COM
Uncertainty-PCE
6.6 Unc
5.8 Unc
4.9 Unc
4.1 Unc
3.3 Unc
2.5 Unc
1.6 Unc
0.8 Unc
0.0 Unc
RS-47
RS-22
RS-48
RS-23A
RS-49
PW-26
PW-17
PW-21
PW-25
PW-16
PW-24
PW-36
PW-5
PW-4
PW-7
PW-9
RS-13
RS-14
B-13
RS-15A
RS-9
RS-5
RS-10
B-15
MW-2
RS-16
RS-27
RS-6
RS-4
RS-2
RS-46
RS-33
RS-19A
MW-24
MW-4
B-11
B-07
B-06
MW-1
MW-6
MW-3
GP-524
GP-525
GP-526
Livestock
Auction
Pad
CDM

ATTACHMENT 7

HRIA Site Map with Historical Sampling Locations



Legend

AB1	Auger Boring
AB-650	Auger Boring
B1	Soil Boring
BS-451	Stream Bed
CC-1	Creek Channel
GP1	Geoprobe Boring
GP-104	Geoprobe Boring
GP-520	Geoprobe Boring
MW-10	Monitoring Well
MWR-5	Monitoring Well/Recovery Well
PW-3	Private Well
RS-18	Reconnaissance Boring
SB-400	Stream Bank
SG1-20	Soil Gas
SG-225	Soil Gas
SW-5	Surface Water
BK10	Bank Sample
GA-1	Geophysical Survey Area

N

100 0 100
Feet

Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2[E
Image from © 2011 Google™

Figure 2-1
Historical Sampling Locations
HRIA

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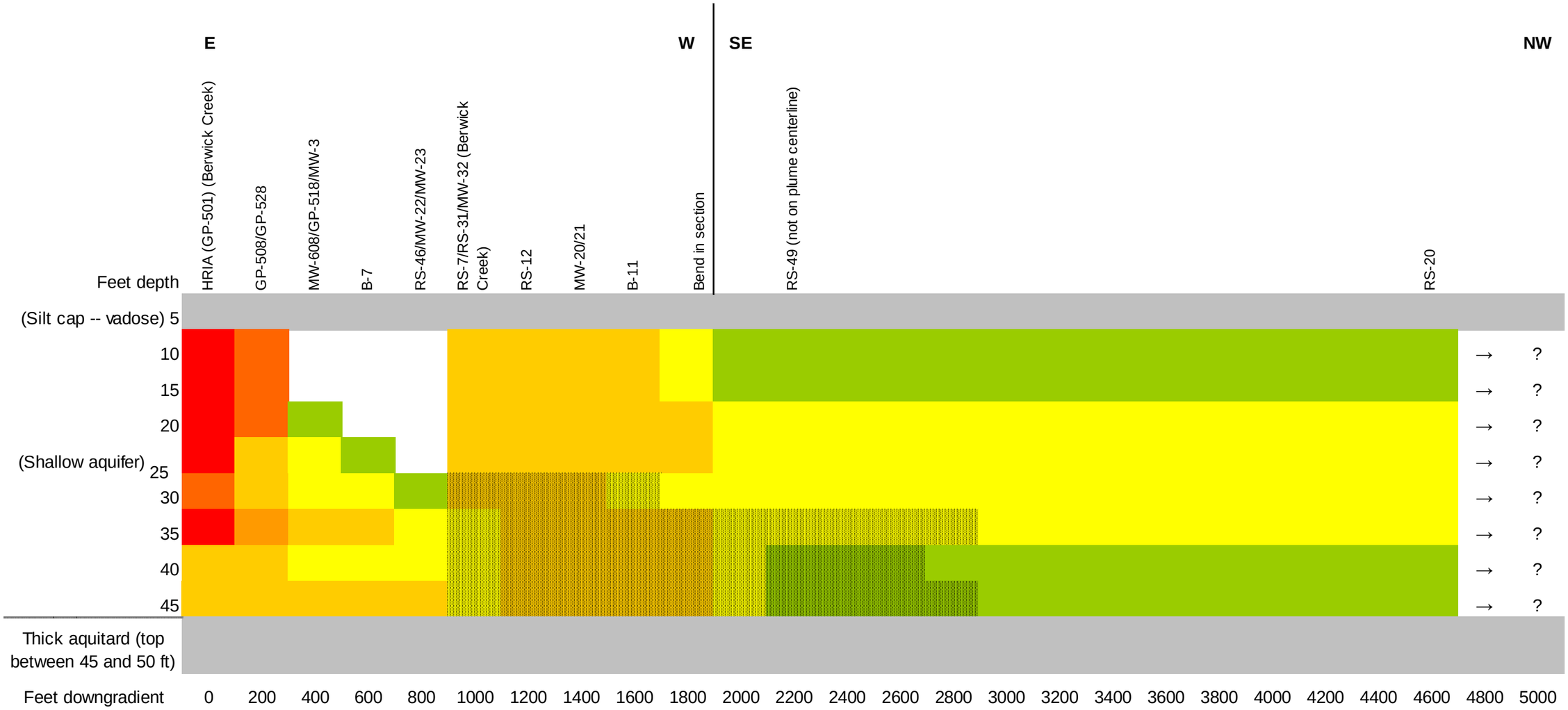
Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure2-1_HistoricSamplingLocations.mxd

ATTACHMENT 8

Conceptual Plume Centerline and “Bottleneck” Transect



> 100 ppm
10-100 ppm
5-10 ppm
1-5 ppm
500-1000 ppb
100-500 ppb
5-100 ppb
< 5 ppb

Conceptual cross section through Breen and Thurman Properties with east (upgradient) to the left and west (downgradient) to the right
25x vertical exaggeration

Estimated zones where HRIA and Breen/Thurman plumes are mixed; downgradient extent of mixed zone is unknown

Sources:
1. EPA (July, 2011)

Figure 4-4
Conceptual Plume Centerline Section

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure4-4_ConceptualPlumeCenterlineSection.mxd

Hamilton/Labree "Bottleneck" N-S Transect

North **South**

Well(s)	RS-1	RS-2	RS-3	RS-46 MW-22		RS-18 MW-22/23		RS-19		MW-24						RS-24	
Feet	0	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000	Avg Conc
5 (WT)																	
10	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	**400**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**12**	26
25	300	120	200	**2.7**	20	**38**	25	10	50	150	100	100	100	100	100	60	92
30	**260**	**120**	**300**	**200**	400	**640**	300	**15**	200	400	450	400	300	250	150	100	280
35	200	100	300	**1000**	900	800	450	90	400	650	600	550	450	350	200	**150**	449
40	140	90	300	**1000**	900	**870**	500	180	500	**910**	800	650	500	350	250	150	506
45	**84**	**72**	**290**	**1200**	800	**560**	400	**260**	550	**910**	800	650	500	350	250	**150**	489

>1 ppm
> 500 ppb
> 100 ppb
> 50 ppb
> 10 ppb
< 10 ppb

Approx. 30 X Vertical Exaggeration

Silt Cap (In some places, bottom is a little below 5 ft)
Aquitard (In some places, top is a little below 45 ft, and samples below 45 ft may be plotted as 40-45 ft)
GW data from wells or depth-specific boring samples are plotted in **bolded black font**; interpolated values are plotted in blue.
Concentrations below detection limit (typically 0.2 µg/L) are plotted as 0.

Sources:
1. EPA (July, 2011)

Figure 4-5
"Bottleneck" N-S Transect

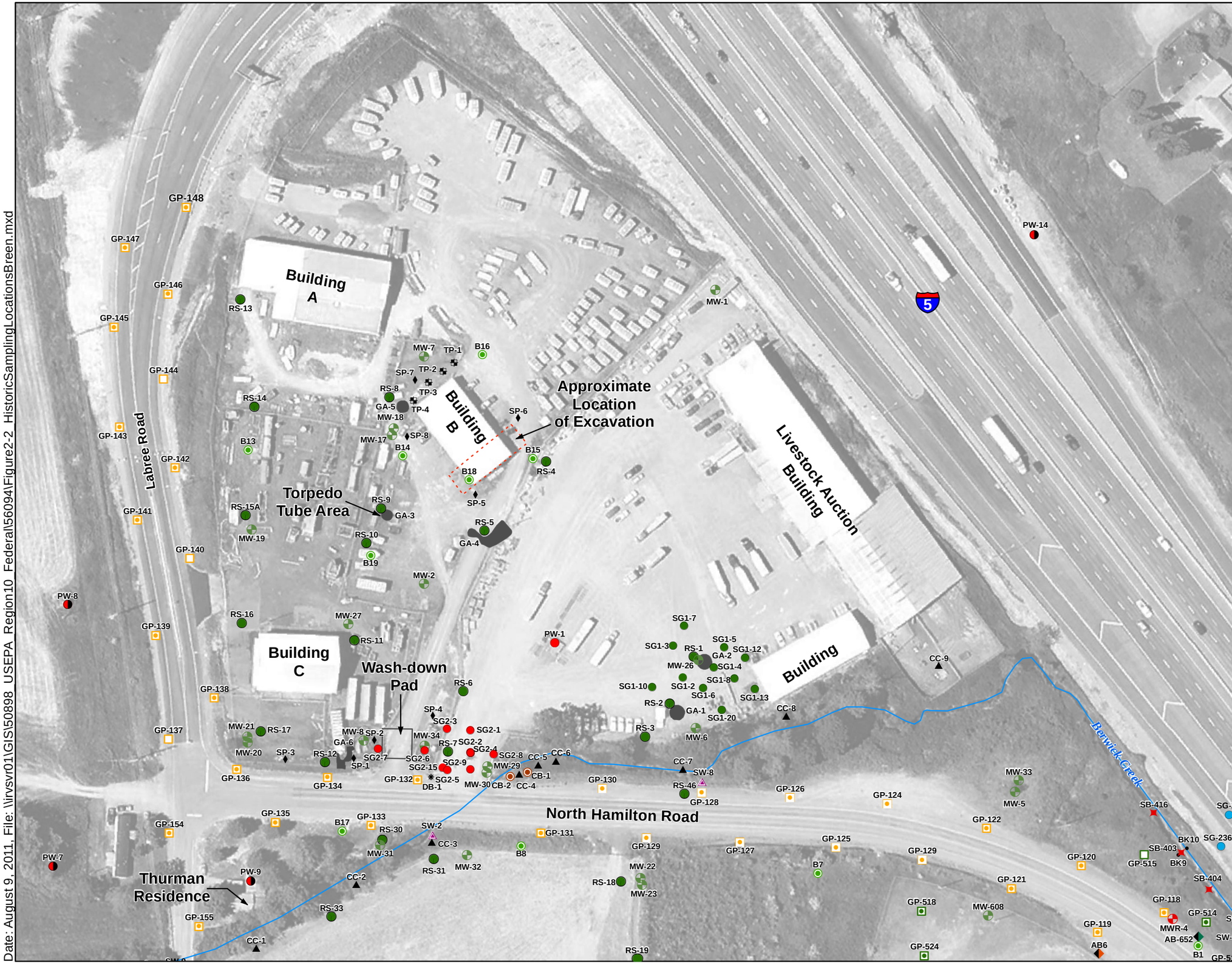
EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure4-5_Bottleneck_N-STransect.mxd

ATTACHMENT 9

Breen Property Site Map with Historical Sampling Locations



Legend

AB6	◆	Auger Boring
AB-652	◆	Auger Boring
B1	◉	Soil Boring
CC-9	▲	Creek Channel
GP-118	▣	Geoprobe Boring
GP-524	▣	Geoprobe Boring
MW-33	◔	Monitoring Well
MWR-4	◔	Monitoring Well/Recovery Well
PW-1	◐	Private Well
RS-1	●	Reconnaissance Boring
SB-403	✖	Stream Bank
SG1-10	●	Soil Gas
SG2-9	●	Soil Gas
SG-230	●	Soil Gas
SP-1	♦	Strataprobe Boring
SW-2	▲	Surface Water
TP-1	▪	Test Pit
BK10	•	Bank Sample
DB-1	✷	Shallow Soil
CB-1	◉	Boring
GA-6	⬬	Geophysical Survey Area

Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2. Image from © 2011 Google™

Figure 2-2
Historical Sampling Locations
Breen Property and Adjacent

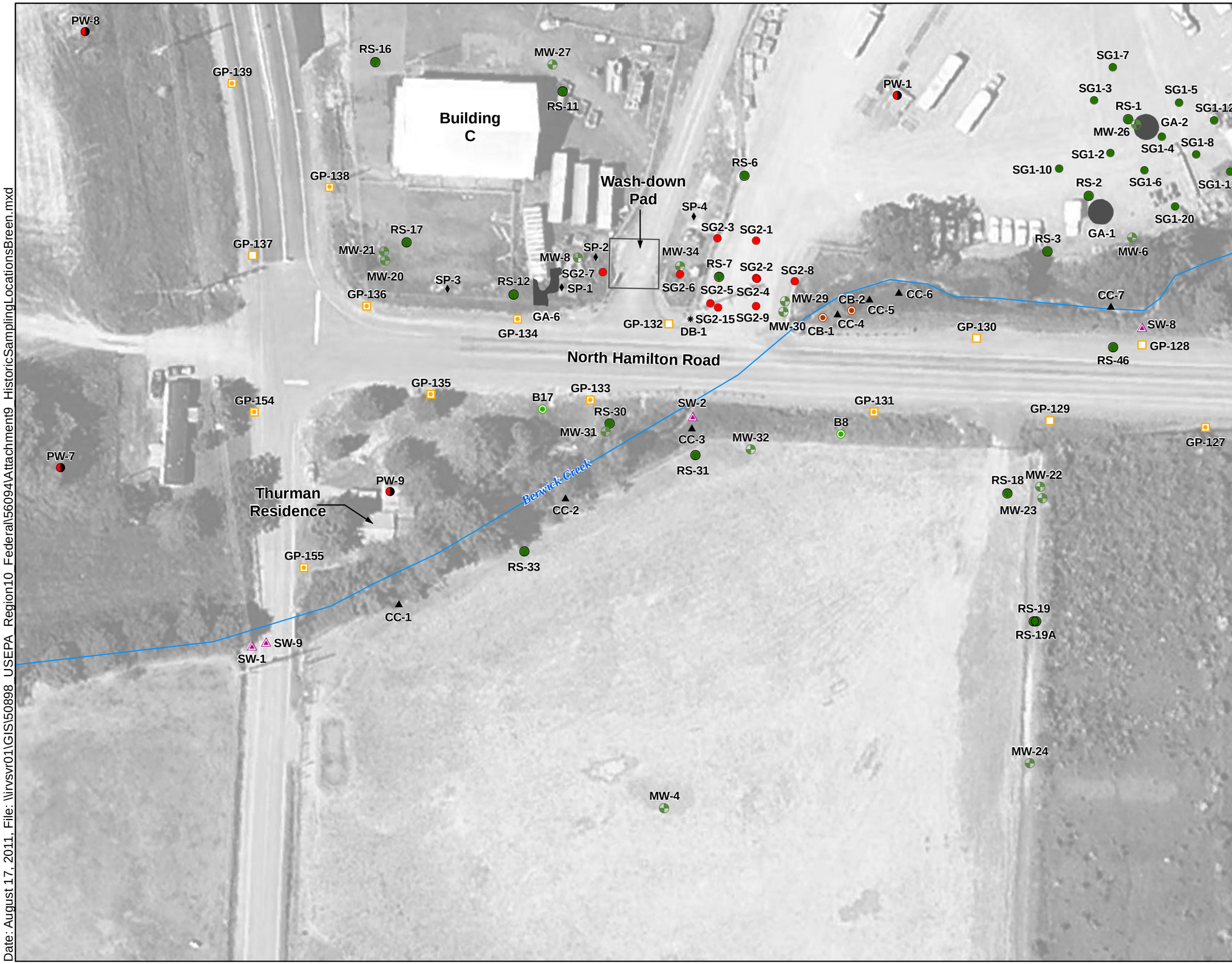
EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Figure2-2_HistoricSamplingLocationsBreen.mxd

ATTACHMENT 10

Thurman Berwick Creek Site Map with Historical Sampling Locations



Legend

B8	Soil Boring
CC-6	Creek Channel
GP-130	Geoprobe Boring
MW-32	Monitoring Well
PW-1	Private Well
RS-19	Reconnaissance Boring
SG1-10	Soil Gas
SG2-9	Soil Gas
SP-1	Strataprobe Boring
SW-2	Surface Water
DB-1	Shallow Soil
CB-1	Boring
GA-6	Geophysical Survey Area

N

60 0 60
Feet

Sources:
1. P aramatrix (March, 2010)
cology and Environment, Inc. 2002]
2[E
Image from © 2011 Google™

Attachment 10
Historical Sampling Locations
Thurman / Berwick Creek Area

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 17, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Attachment9_HistoricSamplingLocationsBreen.mxd

Data Usability
Technical Memorandum

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www.parametrix.com

CONTRACT SUBMITTAL
R-10 AES (SMALL BUSINESS)
Contract No. 68-S7-03-04 Task Order 024

TECHNICAL MEMORANDUM

Date:	May 13, 2009
To:	Tamara Langton, EPA Region 10
From:	Scott Elkind Stuart Currie
Prepared by:	Scott Elkind
Subject:	Hamilton/Labree Roads Superfund Site: Revised Data Usability Review
cc:	Marcia Knadle, EPA Region 10 Project File
Project Number:	415-2328-007 (024/RR01)
Project Name:	EPA R-10 AES – Hamilton/Labree RI/FS

INTRODUCTION

EPA Region 10 has requested that Parametrix (Contractor) provide technical support for the development of a Remedial Investigation/Feasibility Study (RI/FS) for the Hamilton/Labree Roads Groundwater Contamination Site (Site) in Chehalis, Washington. The goal of this technical memorandum is to present the results of a data usability review of available chemical data collected during historical investigations completed at the Site. The technical memorandum also includes an evaluation of data collected in 2007 during groundwater monitoring and indoor air monitoring.

Table 1 presents a summary of relevant historical investigations conducted at the Site. The Contractor anticipated that the data from these investigations could be used as presented in the respective original data sources. However, this technical memorandum summarizes the efforts completed by the original investigators to evaluate data quality and evaluates the usability of this third-party data for completing the RI/FS.

The evaluation of data usability included reviewing available documentation to determine the following:

- Had a Quality Assurance Project Plan (QAPP), Sampling and Analysis Plan (SAP), or Field Sampling Plan (FSP) been prepared for each investigation?

- What procedures were used to collect samples?

- What analytical methods were used and who provided analytical services?
- Were the protocols presented in the QAPP, SAP, or FSP followed?
- Was chain-of-custody documentation prepared and was it available for review?
- Was data reviewed/validated and who completed the task?
- What were the results of the data review/validation and are reports available?
- Was an investigation report completed?

A detailed review of available QAPPs, SAPs, and FSPs was not conducted to determine if all procedures presented in these documents had been followed. Instead, a cursory review of these documents was completed and discussions on deviations from required sampling protocols presented in the corresponding investigation documents were used to determine if/what procedures had been revised in the field. Sampling and analysis methodologies described in this technical memorandum were primarily taken from the final investigation documents completed for the Site.

True "data validation" would require a complete review of all relevant study documents, including planning documents, analytical data packages, field notes, and data verification notes. As noted in the Guidance on Environmental Data Verification and Data Validation (EPA 2002), these evaluation procedures are not routinely performed for third-party data. In regards to the Site, obtaining all of the necessary information to support a formal data validation effort would be particularly difficult, given the number of investigators involved and the extended time period over which these investigations have been conducted (i.e., greater than 10 years). Therefore, the effort documented in this technical memorandum primarily consisted of reviewing the data quality evaluations included in the third-party investigation reports. These reviews do not constitute an attempt to re-validate any of the third-party data; however, in several cases, available quality control (QC) data were evaluated to confirm data quality where information was limited.

DATA SOURCES AND EVALUATION

Reports, databases and other files containing historic chemical and physical data were received from the EPA contractor (URS) and the S.C. Breen Construction Company (Breen) contractor, Farallon Consulting (Farallon). These reports, databases and files contained data pertaining to contaminant evaluations conducted between 1993 and 2004 on or in the vicinity of the Breen Property and the Hamilton Labree Roads Impact Area (HRIA) source area by Washington State Department of Ecology (Ecology) and contractors, EPA Region 10 and contractors, and Breen and contractors. In addition, a file search was completed at Ecology's Southwest Regional Office to obtain any relevant data, reports, and other information not previously included in the databases and files.

In addition, data recently collected by EPA Region 10 Contractor Parametrix and the EPA Emergency Response Team (ERT) was also evaluated.

The following investigation reports and other data sources were reviewed:

- Final Sampling and Analysis Plan for Hamilton/Labree Roads Perchloroethylene (PCE) in Groundwater Site (SAIC 1997a).

- Phase I and II Data Presentation Report for Hamilton/Labree Roads Perchloroethylene (PCE) in Groundwater Site (SAIC 1997b).
- Source Investigation Report for Hamilton/Labree Roads Chlorinated Solvent Site (Ecology 1999a).
- Hamilton/Labree Soil Sampling and Ground Water Monitoring Quality Assurance Project Plan (Ecology 1997).
- Hamilton/Labree Roads PCE Site Ground Water Monitoring, October 1997 – July 1998 (Ecology 1999b).
- Hamilton/Labree Roads PCE Site Ground Water Monitoring, February and July 1999 (Ecology 2000).
- Interim Remedial Action Report, S.C. Breen Construction Company Property, Chehalis, Washington (GeoEngineers 2001).
- Hamilton-Labree Quality Assurance Plan (E&E 2000a).
- Removal Assessment Report, Hamilton-Labree Site, Chehalis, Washington (E&E 2000b).
- Hamilton-Labree Quality Assurance Plan (E&E 2001a).
- Phase IV Hamilton-Labree Quality Assurance Plan (E&E 2001b).
- Hamilton-Labree Phase III Removal Assessment Report, Chehalis, Washington (E&E 2001c).
- Hamilton-Labree Phase IV Removal Assessment, Chehalis, Washington (E&E 2002).
- Phase I Investigation Work Plan, Sampling and Analysis Plan, Health and Safety Plan (Farallon 2002).
- Remedial Investigation/Feasibility Study Work Plan, Hamilton/Labree Roads Groundwater Contamination Superfund Site, Chehalis, Washington (Farallon 2003).
- Unreported data collected by Farallon for the Breen RI (Farallon 2004).
- Data Validation Report, Hamilton/Labree Roads November Groundwater Sampling. (EcoChem 2004).
- Quality Assurance Project Plan EE/CA Investigation, Hamilton Road Impact Area, Hamilton-Labree Roads Superfund Site, Chehalis, Washington (URS 2003).
- Draft (Revision 1) Engineering Evaluation/Cost Analysis Report, Hamilton Road Impact Area, Hamilton-Labree Roads Superfund Site, Chehalis, Washington (URS 2004).
- Hamilton/Labree Roads Groundwater Contamination Superfund Site, Final Quality Assurance Project Plan for Groundwater and Surface Water Sampling (Parametrix 2007a).

- Draft Hamilton/Labree Roads Superfund Site Data Usability Analysis (Parametrix 2007b).
- Quality Assurance Memorandum for Organic Chemical Analyses (EPA 2007a).
- Quality Assurance Project Plan for Hamilton Labree Vapor Intrusion, Chehalis, WA (EPA 2007b).
- Hamilton Labree Vapor Intrusion Site, Chehalis, WA, Work Assignment #EAC00285 – Trip Report (Lockheed Martin 2008).
- Memorandum: Hamilton Labree Vapor Intrusion Study (EPA 2008).

The results of the data usability review are presented below in chronological order.

Washington Department of Health

In 1993 and 1994, eighteen private water supply wells (PW-1 through PW-18) were sampled for volatile organic compounds (VOCs) (Ecology 1999a, 1999b). PCE was detected at six of these wells (PW-2, PW-3, PW-4, PW-5, PW-7, PW-9). Five of these wells were re-sampled (PW-2, PW-3, PW-4, PW-5, PW-9) in June of 1996. Some laboratory data sheets from 1993 is presented in the Ecology (1999a) Source Investigation Report for the Site, but the remaining data was only available in various spreadsheets and databases supplied to the Contractor.

No QAPP, SAP, or descriptions of the sampling methods used were available for review.

Samples from 1993 were analyzed by EPA Method 524.2 by the Washington Department of Health Laboratory. No chain-of-custody documentation was available. No information on data review/validation was available for these samples.

Washington Department of Ecology

Ecology conducted various investigations at the Site (SAIC 1997; Ecology 1999a; Ecology 1999b, Ecology 2000) with a goal to locate the source(s) of PCE contamination.

SAIC 1997b

This report presented data for groundwater and soil samples collected in February/March 1997 (Phase I investigation) and April/May 1997 (Phase II investigation). Sampling was conducted per the *Final Sampling and Analysis Plan for Hamilton/Labree Roads Perchloroethylene (PCE) in Groundwater Site, Chehalis, Washington* (SAIC 1997a). However, this SAP was not available for review and no discussion of deviations from the proposed sampling methods was presented in the investigation report.

<u>Sampling Methods:</u> As a contractor for Ecology, SAIC collected subsurface soil samples throughout the HRIA source area using a hollow-stem auger equipped with an 18-inch long, 2-inch diameter split-spoon sampler. Soil samples were collected at five-foot intervals beginning five feet below ground surface. Soil was screened for VOCs using a HNu™ photoionization detector (PID).

Several monitoring wells were installed and both monitoring wells and private wells were sampled. Monitoring wells were purged using either disposable bailers (Phase I sampling) or a Grundfos Rediflow

2 submersible pump (Phase 2 sampling). All samples were collected using disposable hand bailers. Samples for the private wells were collected using the dedicated well pump.

Data Analysis and Validation: Laucks Testing Laboratories, Inc. in Seattle, Washington conducted all chemical analyses. Samples were analyzed for VOCs using EPA Method 8260. Chain-of-custody documentation was included with laboratory reports in the investigation report.

A data review/validation summary was not included in the report; however, field QC sample results (equipment rinsate blanks) were discussed and laboratory case narratives and data summary sheets were included. A limited review of the available analytical QC data and laboratory case narratives indicated acceptable results and no rejected data were identified. All data reported were judged to be acceptable for further use.

Ecology 1999a

Ecology contracted Transglobal Environmental Geosciences Northwest, Inc. (TEG) of Lacey, Washington to conduct additional site investigation. This investigation report presented data for soil, groundwater, and surface water samples collected during a site investigation in March/April 1998. It also includes historical data reported by the Department of Health in 1994 and 1996. No Quality Assurance Project Plan (QAPP) or Sampling and Analysis Plan (SAP) were available for review.

Sampling Methods: Vadose zone soil samples were collected from borings B21 through B27 located near private supply well PW-3, using Strataprobe™ direct-push technology. Samples were collected using an 18-inch long, 2-inch diameter split-spoon sampler lined with stainless-steel sleeves. The content of the split-spoon sampler were transferred directly to glass jars.

TEG also collected shallow and deep groundwater samples from temporary borings (B1 through B20 and B-23 through B27) near the intersection of Hamilton and Labree Roads. Samples were collected using a combination of a peristaltic pump and syringe to help minimize VOC loss.

Surface water samples were collected from Berwick Creek sampling stations SW-1 through SW-3, and the east end of the culvert emptying into unnamed ditch (SW-4). Samples were collected directly into sampling containers at the approximate mid-point of the creek channel.

Data Analysis and Validation: TEG conducted all analyses on-site using a mobile laboratory. Samples were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) and/or specific halogenated hydrocarbons using EPA Method 8010/8020. All samples were analyzed within 30 to 60 minutes of collection. Chain of custody documentation was not included in the investigation report.

A data review/validation summary was not included in the report; however, laboratory data and QC summary sheets were included, as well as a summary of TEG's QC procedures. No field QC data were identified. A limited review of available analytical QC data, including an evaluation of method blank results, surrogate recoveries, and analytical and field duplicate precision, indicated acceptable results and no rejected data were identified. All data reported were judged to be acceptable for further use.

Ecology 1999b

This report presented data for soil, groundwater, and surface water samples collected between October 1997 and July 1998. Sampling was conducted per the *Hamilton/Labree Soil Sampling and Ground Water Monitoring Quality Assurance Project Plan* (Ecology 1997). Based on a review of the QAPP and final

investigation report, it appears that most field and laboratory protocols were followed during the investigation. However, no discussion of deviations for the QAPP was included in the investigation report.

Sampling Methods: Ecology collected six soil samples near PW-9 using a JMC portable soil sampler in January of 1998. The JMC sampler was equipped with a 3-foot long, 1-inch diameter sampling tube lined with stainless-steel sleeves. Samples were collected from 1-3 feet and 4-6 feet below ground surface. The content of the sleeves was emptied into a stainless steel bowl and homogenized before being placed into sampling containers.

Ecology also conducted quarterly monitoring of permanent monitoring wells (MW-1 through MW-9), monitoring and recovery wells (MWR-1 through MWR-7), and private wells (PW-2 through PW-22). Groundwater samples from the monitoring wells were collected using a stainless-steel submersible pump and a low-flow sampling technique. Samples for the private wells were collected using the dedicated well pump.

Surface water samples were collected from Berwick Creek sampling stations SW-1 through SW-3. Samples were collected directly into sampling containers at the approximate mid-point of the creek channel.

Data Analysis and Validation: The EPA Manchester Environmental Laboratory in Port Orchard, Washington conducted all analyses. Samples were analyzed for VOCs using EPA Method 8260. Chain-of-custody procedures were referenced in the investigation document, but no chain-of-custody documentation was available for review.

A data quality review summary and laboratory case narratives were included in the report. All data were judged to be acceptable for further use; with the exception of sample results from private well PW-9 collected January and April 1998. These data were rejected because they were not representative of site conditions, as water from the contaminated well was diluted by an alternate water supply that also fed the water distribution piping at that location. As the alternate supply was disconnected, PCE concentrations returned to historic levels observed in samples collected prior to an installed wellhead treatment system (Ecology 2000).

Ecology 2000

This report presented data for quarterly groundwater monitoring samples collected in February and July 1999. No QAPP or SAP was available for review; however, a description of the sampling and analytical methods used was included in the investigation document.

Sampling Methods: Ecology continued quarterly monitoring of permanent monitoring wells (MW-1 through MW-9), monitoring and recovery wells (MWR-1 through MWR-7), and private wells (PW-2 through PW-22). Groundwater samples from the monitoring wells were collected using a stainless-steel submersible pump and a low-flow sampling technique. Samples for the private wells were collected using the dedicated well pump.

Data Analysis and Validation: The EPA Manchester Environmental Laboratory conducted all analyses. Samples were analyzed for VOCs using standard EPA Method 8260. Chain-of-custody procedures were referenced in the investigation document, but no chain-of-custody documentation was available for review. A data quality review summary and laboratory case narratives were included in the report. No rejected data were identified. All data were judged to be acceptable for further use.

GeoEngineers

GeoEngineers 2001

This report presented data for groundwater and soil samples collected during remedial action (including drum removal activities) and monitoring activities at the Breen Property by GeoEngineers between July 1999 and July 2000. No project QAPP or SAP was available for review.

Sampling Methods: Soil samples were collected from Strataprobe™ sampling locations (SP-1 through SP-8) on the Breen Property. Samples were collected using 1.5-inch, 2-inch, or 3-inch split spoon samplers.

Samples were also collected from test pits (TP-1 through TP-7) installed around Building B prior to drum excavation and removal using a backhoe. Additional soil samples were collected from the drum excavation (Building B) using an excavator. Samples from the test pits and excavation were collected from the center of the backhoe/excavator bucket using stainless steel hand tools. Soil samples from the excavation were screened using an organic vapor monitor (OVM) and field testing for oil sheen by placing soil in water.

Groundwater samples were collected from Strataprobe™ borings (SP-1 through SP-8) at depths of 15 and 40 feet using a peristaltic pump with polyethylene tubing or a 60 cubic centimeter syringe with a shutoff valve at the end of the polyethylene tubing.

Data Analysis and Validation: TEG (onsite mobile laboratory), Sound Analytical Services, Inc. in Tacoma, Washington, and North Creek Analytical, Inc. in Bothell, Washington conducted the chemical analyses. Soil and groundwater samples collected from the Stratatprobe™ borings and test pits were analyzed for VOCs using EPA Method 8021B. In addition, two soil samples were also analyzed for VOCs using EPA Method 8260, total petroleum hydrocarbons using WTPH-HCID, semivolatile organic compounds (SVOCs) using EPA Method 8270, and metals using EPA Series 6000/7000 methods. Chain-of-custody documentation was included with laboratory reports in the investigation report.

A data quality review summary was included in the report. All data were judged to be acceptable for further use, with the exception of positively-detected methylene chloride (dichloromethane) data for these samples. These data were rejected due to high analyte levels seen in the corresponding analytical method blanks. Methylene chloride data (detections only) for the 2001 GeoEngineers groundwater and soil samples will be excluded from use in completing the RI/FS.

E&E Investigations

The EPA Superfund Technical Assessment and Response Team (START) contractor (Ecology and Environment, Inc. [E&E]) conducted Phase I, II, III, and IV investigations in the vicinity of the HRIA source area between June 2000 and January 2002. Data collection efforts included soil and groundwater from temporary borings, groundwater from monitoring wells and sampling of new monitoring wells.

E&E 2000b

This report included the results of Phase I and Phase II investigations conducted between June and August 2000. Sampling and analysis was conducted following the *Hamilton-Labree Quality Assurance Plan* (E&E 2000a); however, this document was not available for review. According to information presented in the investigation report, all sampling and analysis was conducted per the QAPP.

Sampling Methods: Phase I investigations occurred during June and July 2000, and included subsurface soil samples (AB-1 through AB-10, GP-1 through GP-4, and GP-A3 through GP-A4) collected at four-foot intervals using a direct-push Geoprobe™ or a hollow-stem auger.

Phase I investigations also included groundwater samples collected from subsurface boreholes (AB-1 through AB-10, GP-1 through GP-3, and GP-A3 through GP-A4). Groundwater samples were collected from the borings using either an inertia pump of dedicated Teflon bailer.

Phase II assessment was conducted in August 2000 and included sampling one soil boring (AB-11) and monitoring well borings (MW-9, MW-10, MWR-8 through MWR-11) using a hollow-stem auger equipped with a split-spoon sampler. Soil samples were collected at four-foot intervals.

The Phase II assessment also included sampling of existing monitoring (MW-1 through MW-10, MWR-1 through MWR-7) and private wells (PW-3, PW-9, and PW-14) and newly installed monitoring wells (MWR-8 through MWR-11). Groundwater samples were collected from the borings using either an inertia pump of dedicated Teflon bailer.

Data Analysis: For the Phase I investigation, the Environmental Services Assistance Team (ESAT) mobile laboratory conducted analysis of the 151 soil and 45 groundwater samples using an approved field screening procedure (ESAT PCE analysis). In addition to the ESAT PCE analysis, 45 soil samples were also submitted to OnSite Environmental, Inc. of Redmond, Washington for VOC analysis using EPA Method 8260. Fourteen of the groundwater samples were also submitted to OnSite Environmental for VOCs using EPA Method 8260, with four of these samples also submitted for gasoline analysis using NWTPH-Gx.

For the Phase II investigation, all soil and groundwater samples were submitted to OnSite Environmental for analysis for VOCs using EPA Method 8260.

Chain-of-custody documentation was not available for review.

E& E 2001c

Phase III investigations occurred between January and May 2001 and included the collection of soil and groundwater samples. Sampling and analysis was conducted following the *Hamilton-Labree Quality Assurance Plan* (E&E 2001a); however, this document was not available for review. According to information presented in the investigation report, sampling and analysis was conducted per the QAPP.

Sampling Methods: Soil samples were collected from new monitoring wells (MW-11 through MW-16) using a hollow-stem auger equipped with a split-spoon sampler. Samples were collected from 5 feet, 15 to 20 feet, and 45 to 47 feet below ground surface in each boring.

Phase III investigations also included the sampling of monitoring wells (MW-1 through MW-16), monitoring/recovery wells (MWR-1 through MWR-11), and private wells (PW-3, PW-6, PW-9 and PW-20). Samples were collected from the monitoring wells using dedicated, submersible EasyPumps. Samples for the private wells were collected using the dedicated well pump.

Data Analysis: Soil and groundwater samples were submitted to OnSite Environmental for VOC analysis using EPA Method 8260. In addition, grain size analysis was conducted on two soil samples using American Society for Testing and Materials (ASTM) Method D422 by Aquatic Research, Inc. of Seattle, Washington. Chain-of-custody documentation was not available for review.

E& E 2002

Phase IV soil investigations were conducted to assist in the evaluation of a proposed water supply piping route. Sampling and analysis was conducted following *Phase IV Hamilton-Labree Quality Assurance Plan* (E&E 2001b); however, this document was not available for review. According to information presented in the investigation report, sampling and analysis was conducted per the QAPP except for a deviation related to the purge method used for PW-4 (see discussion below).

Sampling Methods: Phase IV soil investigations were conducted to assist in the evaluation of a proposed water supply piping route. Ninety soil borings were installed (GP-102 through GP-191) and samples collected every 50 feet along Hamilton Road North to the intersection with Labree Road using a Geoprobe™ direct-push technique.

Additional groundwater monitoring was conducted as part of Phase IV investigations during October/November of 2001. Sampling locations included several private wells (PW-1 through PW-9, PW-16, PW-17, PW-21 through PW-37), monitoring wells (MW-1 through MW-10), and monitoring/recovery wells (MWR-1 through MWR-11). Monitoring wells were sampled using dedicated, submersible EasyPumps, except on the Breen Property where dedicated bailers were used.

Samples for the private wells were collected from an outside spigot (before the treatment unit) using the dedicated well pump. The sample from PW-7 was collected directly from the well using a dedicated EasyPump. The sample from PW-4 was collected using a low-flow purge and sampling method. All other groundwater samples were collected following purging of three casing volumes before sampling.

Data Analysis: Soil and groundwater samples were submitted to OnSite Environmental for VOC analysis using EPA Method 8260. In addition, soil samples collected from four of the borings were analyzed for semi-volatile organic compounds (SVOCs) using EPA Method 8270. One soil sample was also submitted for grain size analysis using American Association of State Highways and Transportation Officials (AASHTO) Method T27 by A. A .R. Testing Laboratory, Inc. of Redmond, Washington. Chain-of-custody documentation was not available for review.

E& E 2000b, 2001c, and 2002

Data Validation: Data validation was completed by START chemists. Data quality review summaries and copies of the data quality assurance (QA) memoranda were included in the reports. All data were judged to be acceptable for further use, with the following exceptions:

- 2-Chloroethylvinylether results for samples 00060311, 00060313, 00060315, 00060317, 00060322, 00060325, 00060328, 00060334, 00060339, 01100076 through 01100142, and 01100145 through 01100167 (soils), and 00060201, 00060205, 00060228, 00060269 (water). These data were rejected ("R" qualifier) because the initial calibration failed for this analyte. These "R"-qualified data will be excluded from use in the proposed RI/FS.

Farallon

Farallon conducted remedial investigations at the Breen Property and adjacent areas between June 2002 and June 2004. Data collection efforts included soil and groundwater from temporary borings, groundwater from existing monitoring wells, installation and sampling of new monitoring wells, sampling of creek bed soil/sediment and surface water, and soil gas sampling.

Farallon 2003

This report presented data for soil, groundwater, surface water, and soil gas samples collected during a Phase I RI/FS Investigation conducted from July to December 2002 at the Breen property. Sampling and analysis was conducted following the *Phase I Investigation Work Plan, Sampling and Analysis Plan, Health and Safety Plan* (Farallon 2002). This document included the QAPP and FSP as appendices.

A soil vapor survey was also conducted during the Phase I investigation, but was not included in the Work Plan. No sampling plan was available for review; however, a statement in the *Remedial Investigation/Feasibility Study Work Plan, Hamilton/Labree Roads Groundwater Contamination Superfund Site* (Farallon 2003) stated that the soil vapor survey was approved by EPA.

Sampling Methods: Soil samples were collected at reconnaissance points (RS-1, RS-2, RS-5, RS-8, RS-9, RS-12, and RS-16) and monitoring wells (MW-18, MW-19, MW-12, MW-23, MW-24, and MW-25) on the Breen Property. Soil sampling was completed primarily using a hollow-stem auger. For the reconnaissance borings (RS-1 through RS-24), the FSP stated that Geoprobe™ or Strataprobe™ would be used for boring installation; however, because of apparent problem with shallow refusal using the push-probe technology, most borings were installed using a hollow-stem auger. In addition, the FSP called for collection of continuous soil samples from the surface to 50 feet below ground surface in well borings (MW-18, MW-19, MW-21, and MW-23 through 25). Based discussions with EPA on July 9, 2002, soil samples from groundwater monitoring well borings were collected at approximately 5, 10 and 45 feet below ground surface. The reason for this change was because of slow sample collection with continuous coring and the associated resulting schedule delays.

Soil vapor samples were also collected from 5 feet below ground surface at several locations in the area of RS-1, RS-2, and RS-7. No information on the sampling method was available.

Groundwater monitoring and sampling occurred during June/July 2002 and November 2002. Samples were collected from existing and new monitoring wells (MW-1 through MW-25, MWR-1 through MWR-11), private wells (PW-7, PW-21) and reconnaissance groundwater stations (RS-1 through RS-24) on or downgradient of the Breen Property. Sampling was conducted using low-flow sampling procedures using a peristaltic pump and syringe method to reduce VOC loss.

The Phase I Investigation also included the establishment of six surface water monitoring stations; five along Berwick Creek (SW-6 through SW-10) and one on the unnamed ditch (SW 5). Sampling of these locations occurred during July 2002 and November 2002. Surface water samples were collected using a peristaltic pump with dedicated tubing from mid-channel at approximately 0.6 of the depth from the stream surface to the stream bottom.

Data Analysis and Validation: OnSite Environmental, Inc. conducted all chemical analyses. All soil, groundwater, and surface water samples collected and submitted for the Phase I Investigation were analyzed for the presence of VOCs by EPA Method 8260B. Analyses for additional contaminants, including SVOCs using EPA Method 8270 and gasoline- and diesel-range total petroleum hydrocarbons using NWTPH-Gx and NWTPH-Dx were also conducted for selected groundwater and surface water samples collected in areas downgradient of potential and/or confirmed sources.

Soil vapor samples were analyzed for PCE and TCE by EPA Method 8021B. No information on the laboratory that conducted these analyses was available.

Data validation reports were prepared by an independent consultant, EcoChem, Inc. in Seattle, Washington and it was determined that the analytical data met the QA/QC requirements set forth in the project work plan. Final data validation reports were submitted to EPA under separate covers, along with the complete laboratory data packages. All data were judged to be acceptable for further use, with the following exceptions:

- VOC (EPA 8260) data for sample RS-071002-01. The initial (July 17, 2002) analytical result for PCE exceeded the linear calibration range of the instrument. The sample was reanalyzed twice (July 22 and 24, 2002), but the results were substantially lower than the original result. Therefore, in an effort to be conservative, the analytical result from the original analysis was considered acceptable, while the reanalysis results were rejected ("R" qualifier) and judged to be unsuitable, due to potential low bias from sample inhomogeniety or volatilization. These "R"-qualified data will be excluded from use in the RI/FS.

- VOC (EPA 8260) data for sample PW-080602-05. The initial analytical result for PCE exceeded the linear calibration range of the instrument. A 100x dilution (PW-080602-05DL) was analyzed on August 20, 2002. The original 1x PCE result was rejected ("DNR" qualifier), while the results for all other compounds (i.e., those excluding PCE) from the 100x dilution were also rejected ("DNR" qualifier). These "DNR"-qualified data will be excluded from use in the RI/FS.

- VOC (EPA 8260) data for samples PW-080602-06, -06DL, -07, -08, -09, -10, and PW-080702-01, through -09. These sample results were rejected ("DNR" qualifier) due to a laboratory error and these samples were re-sampled and re-analyzed at a later date. These original "DNR"-qualified data will be excluded from use in the RI/FS.

Chain-of-custody documentation was available for all sampling conducted.

Farallon 2004

This data was associated with Phase II RI/FS investigations conducted in August/September 2003, November 2003, April 2004, and June 2004, and included soil, creek bed soil/sediment, groundwater, and surface water sampling. These data were unpublished, but provided to EPA by Farallon. Sampling and analysis was conducted following the *Remedial Investigation/Feasibility Study Work Plan, Hamilton/Labree Roads Groundwater Contamination Superfund Site* (Farallon 2003). This document included the QAPP and FSP as appendices. Quarterly reports prepared by Farallon for EPA did not specify any deviations from the project QAPP/FSP.

Sampling Methods: Soil samples were collected for analysis from reconnaissance borings RS-30 and RS-31 using a hollow-stem auger equipped with a Dames & Moore split-spoon sampler.

Groundwater sampling occurred in August/September 2003, November 2003, April 2004, and June 2004. Samples were collected using low-flow sampling methods from existing and new monitoring wells (MW-1 through MW-25, MWR-1 through MWR-11), private wells (PW-7, PW-21) and reconnaissance borings (RS-30, RS-31, RS-33, RS-41 through RS-43, RS-46 through 49).

Surface water samples were collected along Berwick Creek (SW-5 through SW-10) using a peristaltic pump with dedicated tubing.

Creek bed soil/sediment was collected from beneath the stream channel at several locations (CC-1 through CC-9) on Berwick Creek between the HRIA and Labree Road. Samples were collected using a hand-held diameter drive sampler.

Data Analysis and Validation: Samples were analyzed for VOCs using EPA Method 8260 by OnSite Environmental, Inc.

Data validation reports were prepared by EcoChem, Inc. and it was determined that the analytical data met the QA/QC requirements set forth in the project work plan. All data were judged to be acceptable for further use. Chain-of-custody documentation and electronic data deliverables (EDD) was available for all sampling conducted.

URS Group, Inc.

On behalf of EPA Region 10, URS conducted investigations related to preparation of an engineering evaluation and cost analysis (EE/CA).

URS 2004

This report presented data for soil, creek soil/sediment, and ground water samples collected during the EE/CA field investigation conducted August through November 2003 by URS for EPA (URS 2004). Sampling and analysis was conducted following the Quality Assurance Project Plan EE/CA Investigation, Hamilton Road Impact Area, Hamilton-Labree Roads Superfund Site, Chehalis, Washington (URS 2003). A summary of the actual sampling methods used are described in detail in Appendix A of the *Draft (Revision 1) Engineering Evaluation/Cost Analysis Report, Hamilton Road Impact Area, Hamilton-Labree Roads Superfund Site, Chehalis, Washington* (URS 2004) and discussed briefly below. Appendix A also includes information on deviation in sampling procedures from the QAPP.

Sampling Methods: Soil sampling was conducted using a Geoprobe™ in the upper 30 feet of the shallow aquifer, while a hollow-stem auger drill rig was used to explore the lower 20 feet of the shallow aquifer to collect relatively undisturbed soil samples and to install permanent monitoring and recovery wells. Sample collection from Geoprobe borings was completed using a Macro Core Soil Sampler. Sampling with the hollow-stem auger was accomplished using a Dames & Moore split spoon sampler. Soil vapor samples were collected using a Geoprobe™ and a vacuum pump.

During this investigation groundwater samples were collected from Geoprobe™ and hollow-stem auger borings and from new monitoring wells. Depth-specific groundwater samples were collected at the Geoprobe™ locations using the Screen Point 16 Groundwater Sampler. Groundwater samples were collected from hollow-stem auger borings using the hydropunch method, which involves driving a sampler ahead of the lead auger and collecting a small, discrete volume of groundwater. The wells were sampled using a low-flow pneumatic bladder pump set at the depth in the well screen where the highest PCE concentrations were found in discrete water samples.

Creek bed soil/sediment and bank samples were collected along Berwick Creek and the unnamed ditch. A hand-held Geoprobe™ tool called a Large Bore Sampler, consisting of a 24 inch-long, 1 inch-diameter steel sample tube with a steel drive shoe and an acrylic liner, was used for sample collection.

Data Analysis and Validation: The ESAT mobile laboratory conducted analysis of soil and groundwater samples collected from soil borings using an approved field screening procedure (ESAT PCE analysis). Selected samples were also analyzed for soil characteristics and NAPL saturation by PTS Laboratories in

Santa Fe Springs, California and for metals by EPA Contract Laboratory Program (CLP) laboratories A4 Scientific Inc. or Bonner Analytical Testing Co.

Groundwater samples from soil boring were analyzed by the ESAT mobile laboratory using the ESAT PCE analysis method. Groundwater samples collected from permanent wells were analyzed for VOC using EPA Method 8260 by Manchester Environmental Laboratory.

Creek bed soil/sediment and bank samples and soil vapor samples were analyzed by the ESAT mobile laboratory using the ESAT PCE analysis method

For Manchester Laboratory-generated and ESAT analytical data, validation was completed by Manchester Laboratory chemists. The analytical data for metals in soil samples, as reported by the CLP, were validated by chemists in EPA's Office of Environmental Assessment (OEA). A data quality review summary and copies of the data QA memoranda were included in the report. All data were judged to be acceptable for further use, with the following exceptions:

- Thallium results for samples MJ2756, MJ2757, MJ2759, MJ2760 (soils). These data were rejected ("R" qualifier) due to severe matrix interference which may have resulted in possible false negatives for this analyte. These "R"-qualified data will be excluded from use in the RI/FS.

Chain-of-custody documentation was available for all sampling conducted.

Parametrix

Between July 10 and 13, 2007, Parametrix conducted a supplemental groundwater and surface water investigation for EPA in support of the site-wide remedial investigation.

Parametrix 2008

Sampling and analysis were completed following the *Hamilton/Labree Roads Groundwater Contamination Superfund Site, Final Quality Assurance Project Plan for Groundwater and Surface Water Sampling* (Parametrix 2007a).

Sampling Methods: A total of nine existing monitoring wells were sampled from various locations at the Site. Groundwater samples were collected using a Grundfos Rediflow 2 pump with dedicated tubing following low-flow sampling procedures.

Surface water samples were collected from two locations along Dillenbaugh Creek. Samples were collected from the approximate center of the channel at approximately 6-inches below the water surface using a container attached to a pole. Once collected from the creek, samples were transferred directly to the sample containers.

Data Analysis and Validation: All samples were submitted to the Manchester Environmental Laboratory for VOC analysis using EPA Method 8260. Chain-of-custody documentation was available for all sampling conducted. The analytical data were evaluated by Manchester Laboratory chemists and the results presented in the Quality Assurance Memorandum for Organic Chemical Analysis (EPA 2007a). This memorandum is included as Attachment 1. No analytical data were rejected based on this quality assurance review.

A data usability analysis was also completed by Parametrix for the July 2007 sampling event (Parametrix 2007b). Based on the results of this data usability analysis, all data collected during the July 2007 groundwater and surface water sampling event are considered usable for completing data trend analyses and other evaluations required for completion of the site remedial investigation/feasibility study.

EPA

Between November 12 and 16, 2007, vapor intrusion monitoring was conducted in and around private residences and commercial buildings at the Site by the EPA ERT to assess potential risks to human health from volatilization of contaminants from groundwater to indoor and ambient air.

EPA 2008, Lockheed Martin 2008

Sampling was conducted per the *Quality Assurance Project Plan for Hamilton Labree Vapor Intrusion, Chehalis, WA.* (EPA 2007b).

Sampling Methods: A total of 35, 24-hour composite samples (including one trip blank) were collected including 14 indoor air, seven crawl space, six sub-slab, and seven ambient air. Samples were collected using 6-liter Summa canisters. Sub-slab air samples were collected from beneath the concrete floor slabs by coring through the concrete slab and installing a temporary soil gas well near the center of the slab.

Data Analysis and Validation: All air samples were analyzed for VOCs including PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, methylene chloride, and vinyl chloride using EPA Method TO-15 SIM. Analyses were conducted by Columbia Analytical Services for Lockheed Martin Technology Services in Edison, New Jersey. Data validation was completed by Lockheed Martin; no data were rejected and all data were found to be acceptable.

Chain-of-custody documentation was available for all sampling conducted.

GENERAL COMMENT ON SOIL ANALYSIS

Based on the information reviewed, soil samples collected for VOC analysis did not appears to have been preserved using the protocols under EPA Method 5035A. The primary goal of this VOC collection and preservation technique is to minimize the direct volatilization of contaminants in soil to the atmosphere. Since EPA Method 5035A does not appear to have been utilized during soil sample collection, there is a possibility that VOC analytical results are biased low, especially for samples collected from the gravelly materials that comprise the shallow aquifer.

GENERAL COMMENT ON MISSING SAMPLE LOCATION AND DEPTH INFORMATION

The horizontal coordinates of some sample locations are missing. Analytical data associated with these samples is unusable since the data cannot be located at the Site. Samples with unknown locations include: AB-9, AB-10, B9, B10, B12, RS-32, GP-161, PW-10, PW-11, PW-13, PW-18, PW-19, PW-20, SG1-11, SG1-14 through SG1-19, SG2-10 through SG2-14, SG-206, and SG-210. Missing sample depth information is also problematic as any analytical data obtained at a known horizontal position cannot be located vertically.

In addition, the use of groundwater data from wells with long screens where the sample collection depth is unknown is problematic since it is not clear what zone within the shallow aquifer the sample

concentration may represent. The difficulty with using this data is demonstrated by the results obtained from several wells which were vertically characterized by using low-flow sampling methods and placing the pump at different depths within the well screen. In MW-R8 and MW-602, setting the pump at different depths within the screen clearly made a significant difference in the concentration, indicating a strongly stratified plume. However, in MW-R11 the difference in concentrations was not observed with changes in depth. It is unclear why these varying results were obtained. Based on observed results from wells such as MW-R8 and MW-602, using data from wells with long screen intervals where the sample depth is unknown may compromise the validity of trend plots and modeling efforts.

The usability/interpretation of data obtained from groundwater samples collected from private wells is also an issue for several reasons. First, well logs are not available for many of the private wells such that the depth and screen interval of the well is unknown. For those private wells where well logs are available, data has typically not been evaluated vertically by looking at well construction information such as screen interval depths and the type of screen in use (e.g., perforated interval or open end finish). Determining this information could make a difference in how this data is used for modeling efforts and other evaluations of the nature and extent of contamination.

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Table 2-1. Historical Site Investigations and Key Findings

Date Range	Investigated by	Scope of Investigation	Key Findings	References
1993-1994	Washington State Department of Health (WDOH)	Sampled 18 private water-supply wells in the Hamilton/Labree Roads area.	Tetrachloroethylene (PCE) detected in 6 wells screened in the shallow aquifer	Ecology 1999b
1996	WDOH	Re-sampled 5 of 6 wells previously exhibiting PCE.	Slight increase in PCE concentrations from 1993-1994 sampling event	Ecology 1999b
1996	Geo-Recon and SAIC (for Washington Department of Ecology [Ecology])	Geophysical reconnaissance investigation on the Breen property for sources, sampled private water-supply wells, and installed monitoring wells in the upper aquifer.	Some geophysical anomalies detected, but no obvious cache of buried drums. PCE concentrations have ranged from 500 to 1,350 micrograms per liter (µg/L) in MW-3 and 2.4 to 7 µg/L in MW-5.	SAIC 1997 and Geo-Recon 1996
1997-2001	Ecology	Quarterly sampling of monitoring wells and private water-supply wells. Installed 7 wells intended for monitoring and remediation, all within the HRIA study area. Sampling of surface water in Berwick Creek.	Generated data for tracking of contaminant concentrations.	Ecology 2000; Ecology 1999b
1998	Transglobal Environmental Geosciences Northwest, Inc. [TEG] (for Ecology)	Sampled soil and groundwater from 28 temporary borings in the Hamilton/Labree Roads area.	Highest concentration of PCE in groundwater was 60,000 µg/L at location B2.	Ecology 1999a
1999	Northwest Geophysical Associates and GeoEngineers for Breen	Located and removed 70 drums and several small containers, and contaminated soil from beneath a building on the Breen property.	Buried drums were a source of PCE in groundwater.	GeoEngineers 2001
2000 – 2001	START contractor (Ecology and Environment, Inc.) for EPA	Four phases of work as part of a time-critical removal action. Installed and sampled temporary borings, monitoring wells, and combined monitoring and recovery wells. All temporary and permanent sampling locations assessed the shallow aquifer, with various sampling and screen depths. Evaluated removal action alternatives.	Implemented the alternative drinking water supply alternative, connecting affected residences and businesses to the City of Chehalis municipal water supply.	EPA 2000, 2001, 2002
2002	Farallon Consulting for Breen	Phase I investigation work for preparation of a site-wide remedial investigation/feasibility study. Within the HRIA study area, collected surface water from Berwick Creek and groundwater from existing monitoring and private water supply wells. Outside of HRIA study area, installed and sampled temporary borings and permanent monitoring wells, collected stream-bed soil samples from Berwick Creek, collected soil gas samples on Breen property.	To date, eliminated some potential sources areas on the Breen property from consideration. Added to understanding of distribution of PCE in soil and groundwater. Found greater downgradient extent of PCE in groundwater than previous investigations.	Farallon 2003
2003-2004	Response Action Contract (RAC) Contractor (URS Group) for EPA	Engineering evaluation/cost analysis investigation for HRIA study area. Performed geophysical survey to look for targets and characterize subsurface. Collected soil gas samples, stream bed and bank soil samples from Berwick Creek, sampled soil and groundwater from temporary Geoprobe borings to 30 feet below ground surface (bgs), sampled soil and groundwater from auger borings to 50 feet bgs, installed and sampled permanent monitoring wells, performed two constant-discharge aquifer performance tests.	Identified source as dumping to Berwick Creek. Delimited dense nonaqueous-phase liquid (DNAPL) zone and zone of highest PCE concentrations. Obtained soil, groundwater, and aquifer characteristics for screening and design of removal and remedial technologies. Installed wells for use in future remediation and monitoring.	URS 2004
2003-2004	Farallon Consulting	Collected soil, groundwater, and surface water data to support the Remedial Investigation/Feasibility Study (RI/FS) on the Breen property. Installed and sampled permanent monitoring wells, performed constant-discharge aquifer performance tests.	Discussed as part of this RI.	Farallon 2004, unreported
2007	Parametrix for EPA	Collected groundwater and surface water data to support and update the Draft Final RI/FS for the site.	Discussed as part of this RI.	Parametrix 2007
2007	EPA Emergency Response Team (ERT)	Collected indoor and ambient air samples in and around private residences and commercial buildings at the HRIA, Breen Property, and other locations at the Site.	Discussed as part of this RI.	EPA 2007

Land Use Evaluation
Technical Memorandum

Parametrix ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

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BREMERTON, WA 98312-2357
T. 360.377.0014 F. 360.479.5961
www.parametrix.com

CONTRACT SUBMITTAL
R-10 AES (SMALL BUSINESS)
Contract No. 68-S7-03-04 Task Order 024

TECHNICAL MEMORANDUM

Date:	April 2, 2008 Updated July 14, 2011
To:	Tamara Langton, EPA Region 10
From:	Scott Elkind
Subject:	Revision 2 Final Hamilton/Labree Roads - Land Use Evaluation (Revision 3 Update Prepared by CDM)
cc:	Project File
Project Number:	415-2328-007 (024/FI01)
Project Name:	EPA R-10 AES – Hamilton Labree RI/FS

INTRODUCTION

EPA Region 10 has requested the Parametrix Team (Contractor) to provide technical support for the development of a Remedial Investigation/Feasibility Study (RI/FS) for the Hamilton/Labree Roads Groundwater Contamination Superfund Site (Site) in Chehalis, Washington. The purpose of this technical memorandum is to present the results of a desktop land use survey of the Site to assess potential impacts to current and future land-use from contaminated plume migration.

LAND USE INFORMATION

The Lewis County website (http://www.co.lewis.wa.us) and the City of Chehalis website (http://www.cityofchehalis.com) were contacted to obtain available information on both current and future land use for the Hamilton Road Impact Area (HRIA) and Breen Property source areas, and the area downgradient of the source areas. Figures from the Lewis County Comprehensive Plan (June 1, 1999, amended April 4, 2002, December 22, 2008, August 2009, and December 27, 2010), the Lewis County Official Zoning Map, and the City of Chehalis Official Zoning Map were reviewed. Additional information related to zoning was also reviewed at the Lewis County website. A discussion of the findings is presented in the following sections.

Current Land Use

The portion of the Site containing the HRIA and Breen Property source areas is within the City of Chehalis Urban Growth Area (UGA) boundary and is zoned commercial general (CG) [Attachment 1, City of Chehalis Official Zoning Map].

Current land use downgradient of the HRIA and Breen Property source areas consists primarily of residential (Rural Development District [RDD]-20) and Agricultural Resource Lands (west of Rice Road). Figures 4-1a and 4-1a_2 in Attachment 1 show the existing land use. There is a small area in the far northwestern corner of the area bounded by I-5 and Rogers Road (just south of the City of Chehalis) that is currently shown as Public/Quasi Public. This area is located approximately 5,000 feet northwest of the current known extent of the groundwater plume. This area is shown as being within the City limits on the 2009 Lewis County Official Zoning Map and is zoned as a Park (Stan Hedwall Park) on the City of Chehalis Official Zoning Map. A small area adjacent to the northeastern boundary of the Park and adjacent to an I-5 interchange (Exit 76) in this area is shown as City UGA on the 2009 Lewis County Official Zoning Map and is zoned as Commercial Freeway (CF) on the 2009 City of Chehalis Official Zoning Map.

Future Land Use

Future land use at the HRIA and Breen Property source areas is anticipated to be similar to current land use, which is CG. A new freeway interchange was recently constructed where LaBree Road crosses Interstate 5 (I-5) just north of the Breen Property source area. Additional commercial use of this area is anticipated due to the completion of the interchange.

Future land use in the area downgradient of the HRIA and Breen Property source areas is anticipated to be similar to current land use with the exception of one area: the small section located northeast of the Parkand adjacent to the I-5 interchange (Exit 76) , that is shown as undeveloped and Public /Quasi Public on the Existing Land Use Map (see Attachment 1). This area is shown as City UGA on the Lewis County Future Land Use of Rural Lands Map (Figure 4.17a) and zoned as CF on the City of Chehalis Official Zoning Map. The Lewis County future land use map is provided in Attachment 2.

Bob Nacht (personal communication, October 8, 2007), the City of Chehalis Community Development Director, was contacted regarding future land use at the Site.

Most of the area downgradient of the HRIA and Breen Property source areas is not within the Chehalis UGA (except for a small area west of the HRIA and south of the Breen Property, which is zoned CG [see Attachment 1]) and probably would not be considered so unless commercial development approached the City of Chehalis. With the construction of the new I-5/Labree Road interchange, this could happen in the near future. Either general commercial or freeway-oriented commercial zoning would eventually be applied to the area in the vicinity of the new interchange. However, the area around and downgradient of the Hamilton/Labree Roads intersection is located in an environmentally sensitive area and less challenging areas to develop have been sought. Because of floodplain issues, it is unlikely that any residential zoning would be adopted by the City of Chehalis for the properties nearer to the interchange. The properties that lie further from the freeway frontage (including along Rice Road) would probably remain residential.

There have been discussions in the past regarding commercial development of the dairy farm. The cost of obtaining utility service, and the potential for flooding in that area would probably be a deterrent to

anything but commercial development. It is unlikely that any major residential subdivisions would occur in that vicinity.

If the area downgradient of the source areas is designated Chehalis UGA in the future, the City of Chehalis could establish development conditions that would restrict the use of onsite groundwater. The City's water system would become eligible to be extended to that area. However, this could make the cost of development in the area high.

REFERENCES

City of Chehalis. 2009. Official Zoning Map. October.

City of Chehalis. 2011. City of Chehalis Website, http://www.cityofchehalis.com. July.

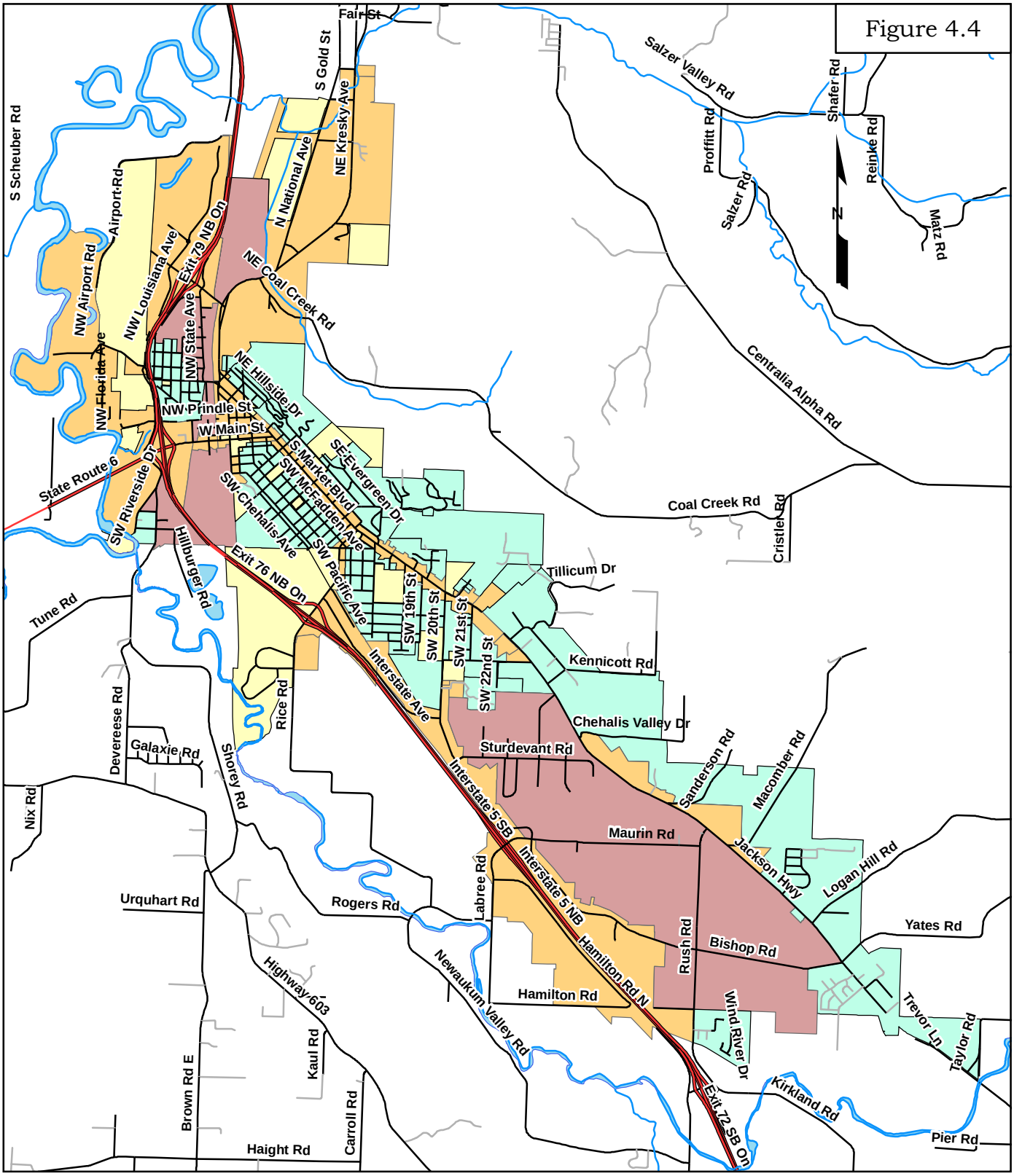
Lewis County. 2010. Lewis County Comprehensive Plan. Approved June 1, 1999; Amended April 2, 2002; December 22, 2008; August 2009, and December 27, 2010.

Lewis County. 2009. Official Zoning Map. December 14.

Lewis County. 2011. Lewis County Website, http://www.co.lewis.wa.us. July.

ATTACHMENT 1

Current Land Use and Zoning Information



Zones

- EPF
- Residential
- Industrial
- Commercial

ZONING CLASSIFICATIONS

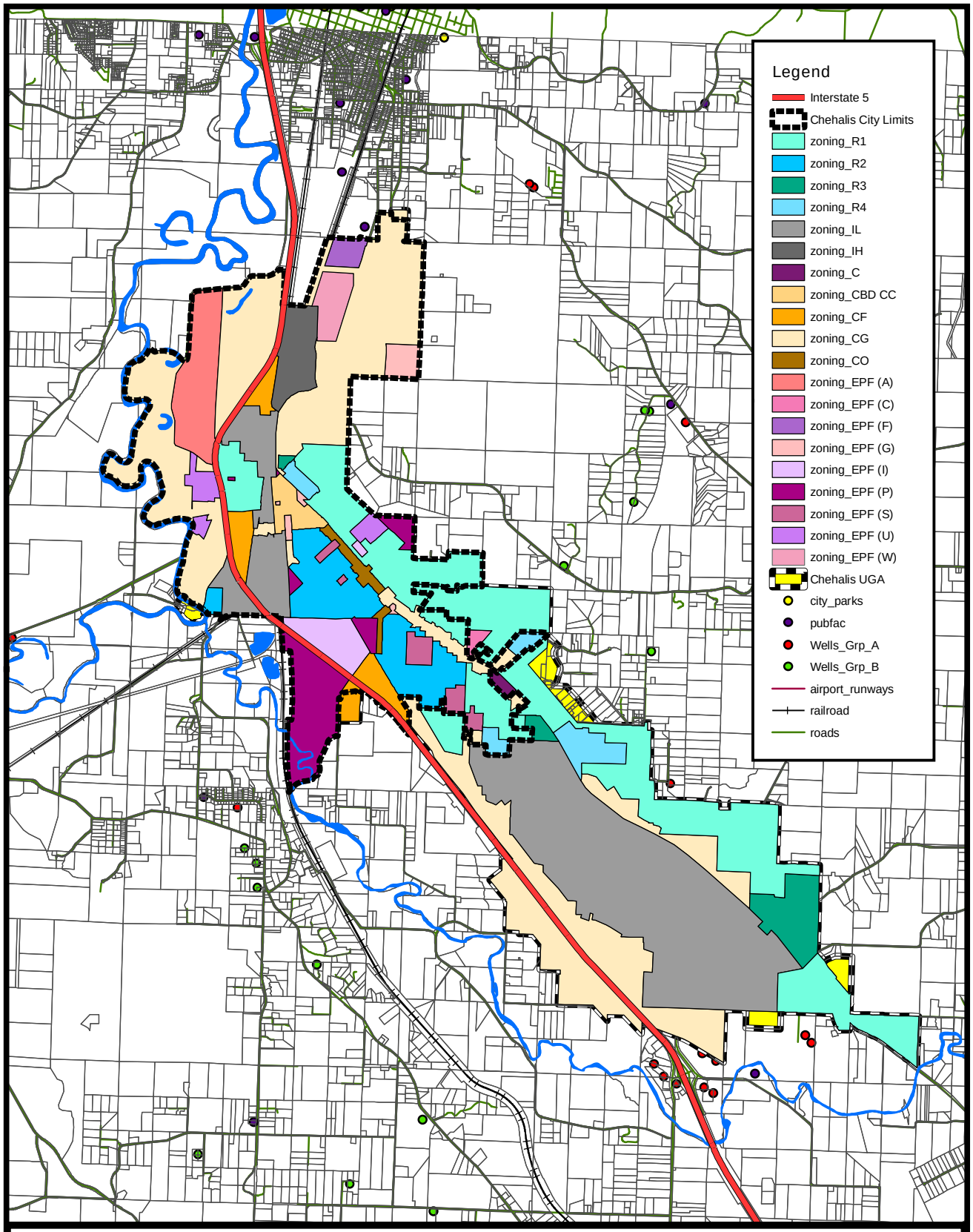
Chehalis

0 0.5 1 2 3 Miles

Lewis County, Washington

Date: March 23, 2010

File: O:\maps\planning\compplan2010\uga_ chehalis.rtl



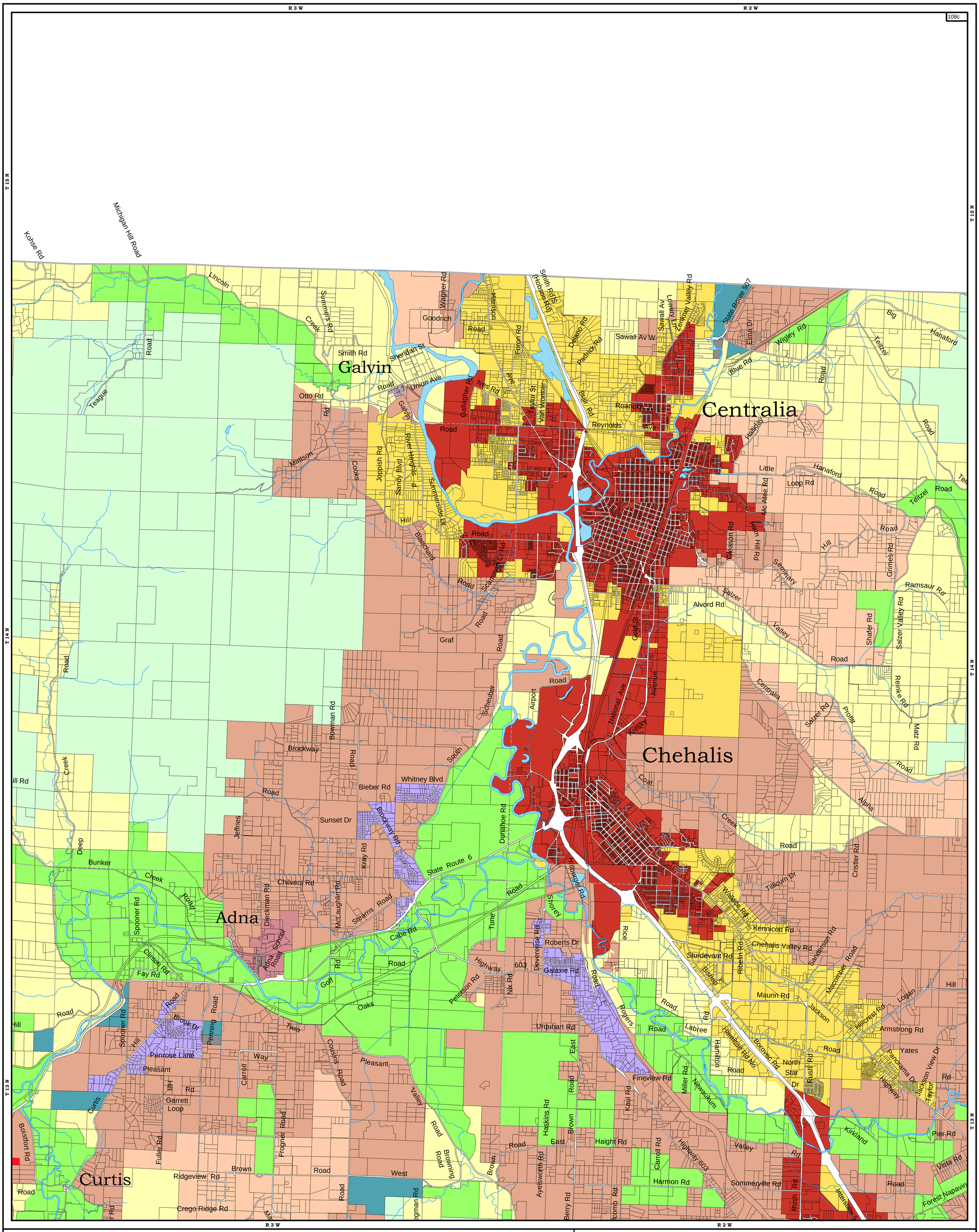
N

0 0.15 0.3 0.6 0.9 1.2 Miles

1 inch = 1.03 miles

City of Chehalis
2009 Zoning Map

Created: November 19 ,2009
LaJane Schopfer



Lewis County - Official Zoning Map

This map was compiled by Lewis County Geographic Information Services. The base map was developed by the Washington State Department of Natural Resources by scanning and digitizing United States Geological Survey 1:24,000 quadrangle maps. The accuracy of the map has not been verified, and should be used for informational purposes only. Any possible discrepancies should be brought to the attention of Lewis County Geographic Information Services.

Projection: Lambert Conic Conformal
Datum: 1983 North American Datum
U.S.G.S State Plane Zone 5626

Scale: 1 Inch = 2000 Feet

0 2,000 4,000 6,000 8,000 10,000 Feet

Adopted and Ratified by the Board of County Commissioners April 4, 2002, pursuant to Ordinance 1179. Amended December 14, 2009

Zoning Classifications

- Park
- City Limits
- UGA - City
- UGA - County
- CC
- FC
- Forest Resource Land
- Mineral Resource Lands
- PTSA
- STR-4
- STMU
- STI
- RRC - R.5
- RRC - R1
- RRC - R2
- RRC - R10000
- RAI
- RDD - 5
- RDD - 10
- RDD - 20
- National Park / Wilderness
- Agricultural Resource Lands
- Proposed UGA - County

Revised: Dec 15, 2009

File: O:/maps/planning/zoning2009/zoning108c .pdf

Lewis County Zoning District Information

This guide is intended to briefly describe the major zoning districts in Lewis County. Specific information about each zone, subdivision requirements or development regulations can be obtained from the Planning Division at (360) 740-1146 or at 2025 NE Kresky Ave. in Chehalis.

Agricultural Resource Land: This zone is primarily devoted to commercial production of aquaculture, horticultural, viticultural, floricultural, diary, apiary, vegetable, or animal products or berries, grain, hay, straw, turf, seed, Christmas trees, or livestock. Agricultural resource lands are currently subject to an order of invalidity imposed by the Western Washington Growth Management Hearings Board. For more information please contact the Planning Division at (360) 740-1146.

CC (Crossroads Commercial): This is a commercial zone that only allows residential development on existing lots. For more information on allowed uses please consult LCC 17.42.030. The purpose of the CC zone is to identify small, concentrated areas that have historically provided commercial services to rural residents and allow infill development.

City Limits: This zone is intended for residential and commercial use. They are managed by the individual city. For more information, please contact the individual city's planning department.

FC (Freeway Commercial): This is a commercial zone that provides service to the traveling public along major transportation routes. The purpose of this zone is to provide areas for new commercial development and provide convenient access to transportation routes. Allowed land uses include all types of commercial development and limited industrial development, residential uses are not allowed. For more information please see LCC 17.42.030.

Forest Resource Land: This zone is intended for land primarily useful for growing trees and Christmas trees for commercial purposes. Forest resource lands are currently subject to an order of invalidity imposed by the Western Washington Growth Management Hearings Board. For more information please contact the Planning Division at (360) 740-1146.

Mineral Resource Land: This zone is primarily devoted the extraction of minerals of commercial significance. Mineral resource lands are currently subject to an order of invalidity imposed by the Western Washington Growth Management Hearings Board. For more information please contact the Planning Division at (360) 740-1146.

RDD (Rural Development District): This is a mixed-use zoning district that allows a number of different land uses such as single family residential, resource uses and limited types of commercial activity. For more information please consult LCC 17.42.040. There are three density designations for this zone that determine the potential for future subdivision in this zone. RDD-5 allows a density of one dwelling unit per five acres for subdivision purposes. RDD-10 allows a density of one dwelling unit per ten acres for subdivision purposes. RDD-20 allows a density of one dwelling unit per twenty acres for subdivision purposes. The purpose of the RDD zone is to achieve a variety of lot sizes, protect rural character, and protect small rural businesses that have historically served the people of Lewis County.

RRC (Rural Residential Center): This zone represents areas that have historically developed at densities and intensities greater than rural development, but outside of urban areas. Residential uses and very limited types of business uses are allowed in this zone. For more information please see LCC 17.42.030. There are four designations for this zone that determine average density of the established pattern of development and minimum lot size. RRC-R.5 allows a maximum density and minimum lot size of one dwelling per ½ an acre. RRC-R1 allows a maximum density and minimum lot size of one dwelling per acre. RRC-R2 allows a

maximum density and minimum lot size of one dwelling per two acres. And RRC-R10000 allows a maximum density and minimum lot size of one dwelling per 10,000 sq. ft. Please note that minimum lot sizes are allowed only if compliant with current environmental health regulations.

STI (Small Town Industrial): This zone allows for industrial development, resource uses, and limited types of commercial and residential development. For more information please consult LCC 17.42.030. The STI designation was created to assure that areas historically devoted to intensive employment activities are protected and to assure the continuation of locations that support long-term commercially significant resource activities.

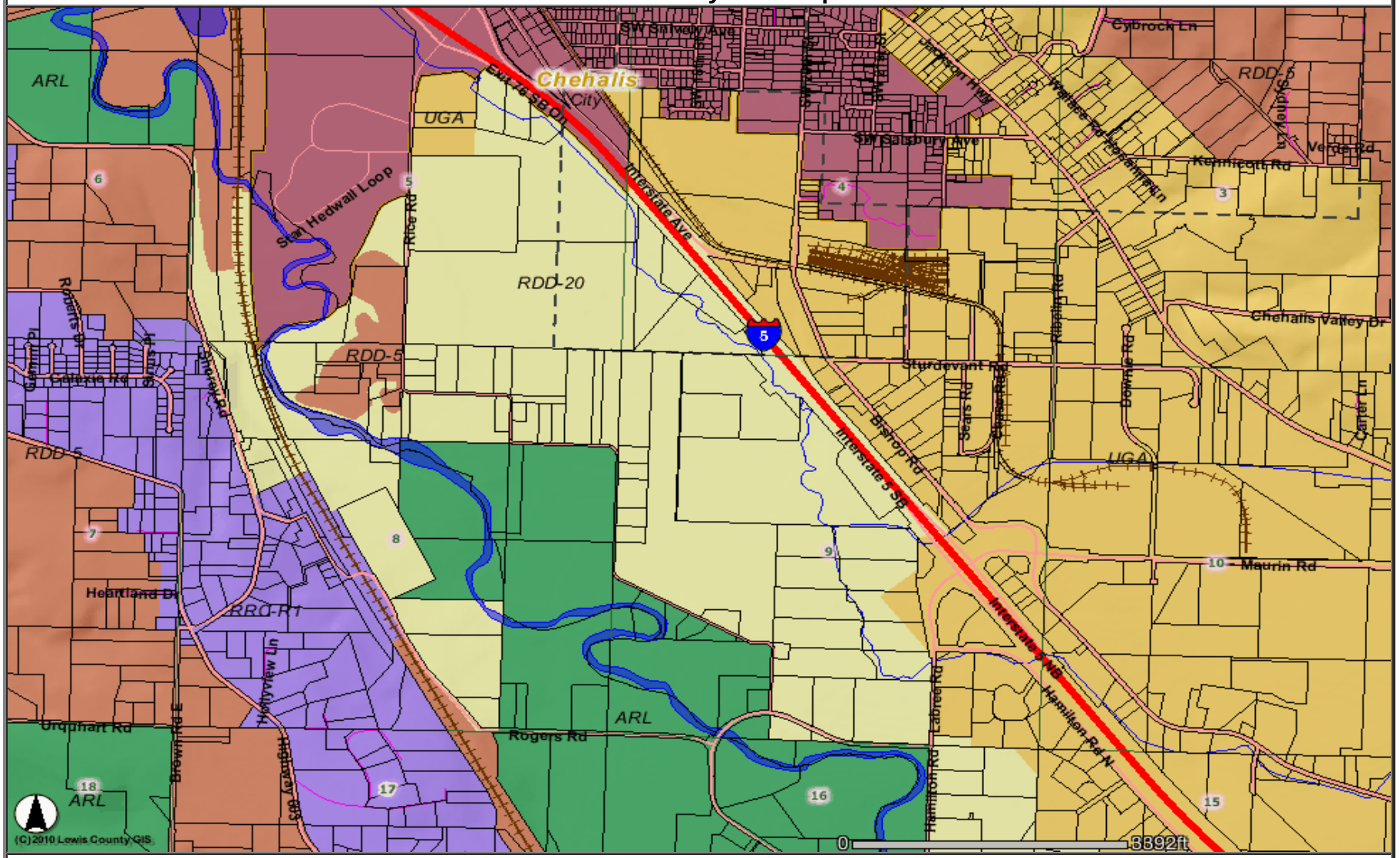
STMU (Small Town Mixed Use): This zone allows commercial and residential activities. For more information please consult LCC 17.42.030. The STMU designation is designed to assure infill development that is consistent with the surrounding uses, existing public facilities and character of the area.

STR-4 (Small Town Residential-maximum four dwellings per acre): This zone promotes and protects areas that have been historically exclusively residential in character. Allowed uses in this zone include various types of residential development and very limited types of business use. For more information please see LCC 17.42.030.

PTSA (Tourist Services Area): This is a floating zone that may be created through a master plan process. PTSA zones are intended to support tourist and recreation areas. Currently there are no designated PTSA zones in Lewis County.

UGA (Urban Growth Area): A designated area for urban growth. Urban growth areas are within county jurisdiction but when attached to an incorporated city, development within this zone is subject to the rules and regulations set forth in that city's Comprehensive Plan and Development Regulations.

Lewis County Web Map



Legend

- Tax Parcels
- Sections
- Twp-Rge
- State Routes
- County Rds
- City Streets
- USFS Routes
- Private Rds
- Railroads
- Streams

Water Bodies

Cities

County Zoning

- CITY
- AG LAND
- FOREST
- FRL-LI
- MINING
- RDD=10
- RDD-20
- RDD-5
- UGA
- ZONING_CC
- ZONING_FC
- UGA - County
- ZONING_PTSA
- ZONING_RAI
- ZONING_RRC-R.5
- ZONING_RRC-R1
- ZONING_RRC-R10000
- ZONING_RRC-R2
- ZONING_STI
- ZONING_STMU
- ZONING_STR-4
- PARK
- WILDERNESS

Federal Lands

- Gifford Pinchot Natl Forest
- Goat Rocks Wilderness
- Mount Baker - Snoqualmie Natl Forest
- Mount Rainier Natl Park
- Mount St Helens Natl Volcanic Monument
- Tatoosh Wilderness
- William O Douglas Wilderness

Gray Hillshade

CITY OF CHEHALIS AND URBAN GROWTH AREAS ZONING DESIGNATIONS

LEGEND

RESIDENTIAL

- RI = SINGLE FAMILY - LOW DENSITY (LARGE LOTS: 4-6 DWELLING UNITS / ACRE) (7500 SF)
- R2 = SINGLE FAMILY - MEDIUM DENSITY (SMALLER LOTS: 7-10 DWELLING UNITS / ACRE) (6000 SF)
- R3 = MULTI FAMILY - MEDIUM DENSITY (11-19 DWELLING UNITS / ACRE) (5000 SF)
- R4 = MULTI FAMILY - HIGH DENSITY (20-24 DWELLING UNITS / ACRE) (5000 SF)

COMMERCIAL

- CN = NEIGHBORHOOD COMMERCIAL (NOT CURRENTLY USED)
- CO = COMMERCIAL OFFICE / MIXED USE (LIMITED TO OFFICE, SERVICE TYPE OF COMMERCIAL USE)
- CG = GENERAL COMMERCIAL (ANY TYPE OF COMMERCIAL USE)
- CF = FREEWAY ORIENTED COMMERCIAL (FREEWAY SERVICES-GAS, FOOD, LODGING, SHOPPING, ETC.)
- CBD = CENTRAL BUSINESS DISTRICT (HIGH DENSITY - DOWNTOWN)

INDUSTRIAL

- IL = LIGHT INDUSTRIAL (GENERALLY NO IMPACT OUTSIDE BUILDING)
- IH = HEAVY INDUSTRIAL (OTHER INDUSTRIAL)

ESSENTIAL PUBLIC FACILITY

- A = AIRPORT
- C = CEMETERY
- F = FAIRGROUNDS
- G = GOVERNMENT
- H = HOSPITAL
- I = INSTITUTION
- P = PARK / PLAYGROUND
- S = SCHOOL
- U = UTILITY
- W = WETLAND

URBAN GROWTH AREA

SCALE: 1"=600 FEET

0 300 600 1200

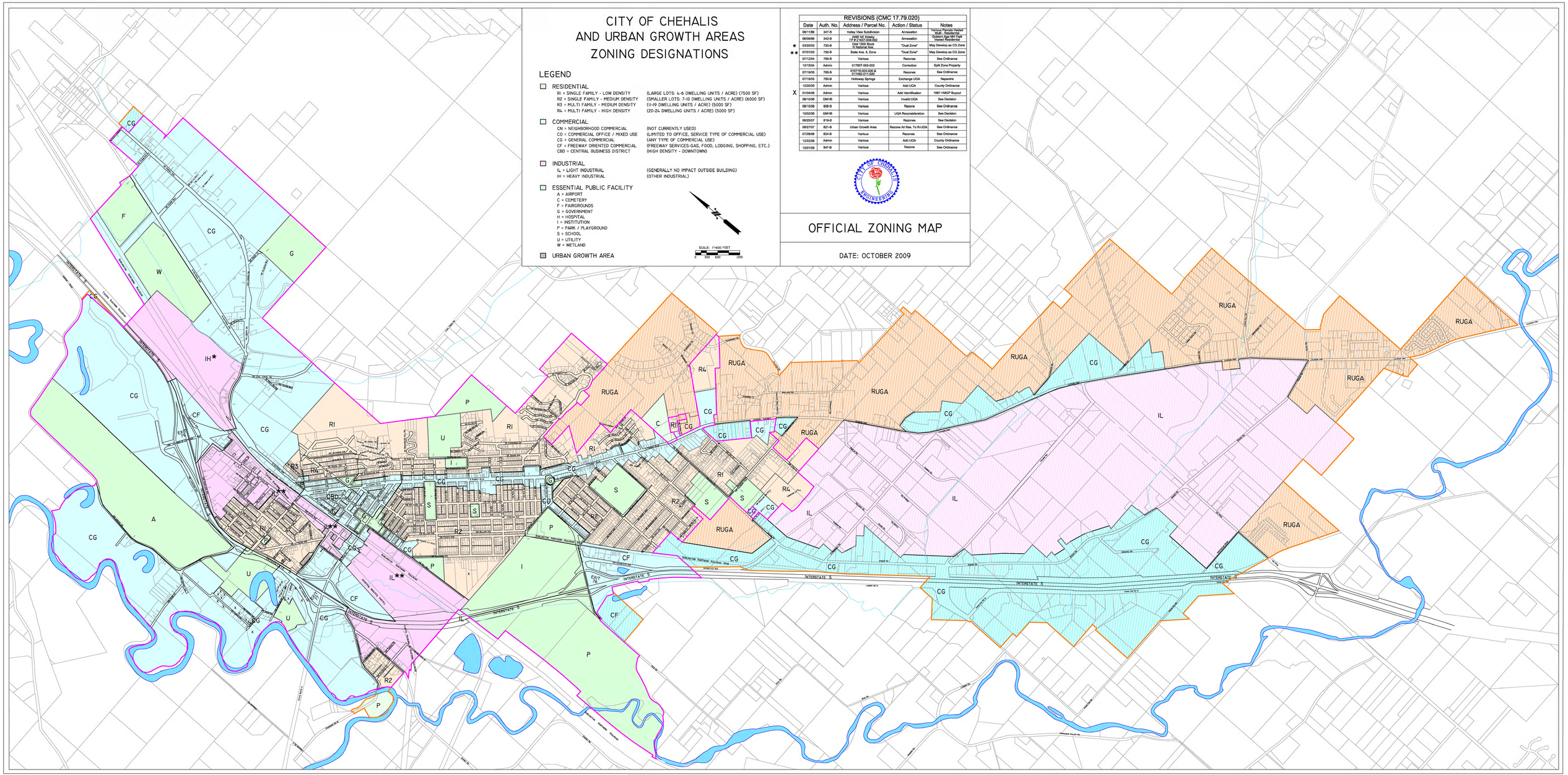
REVISIONS (CMC 17.79.020)

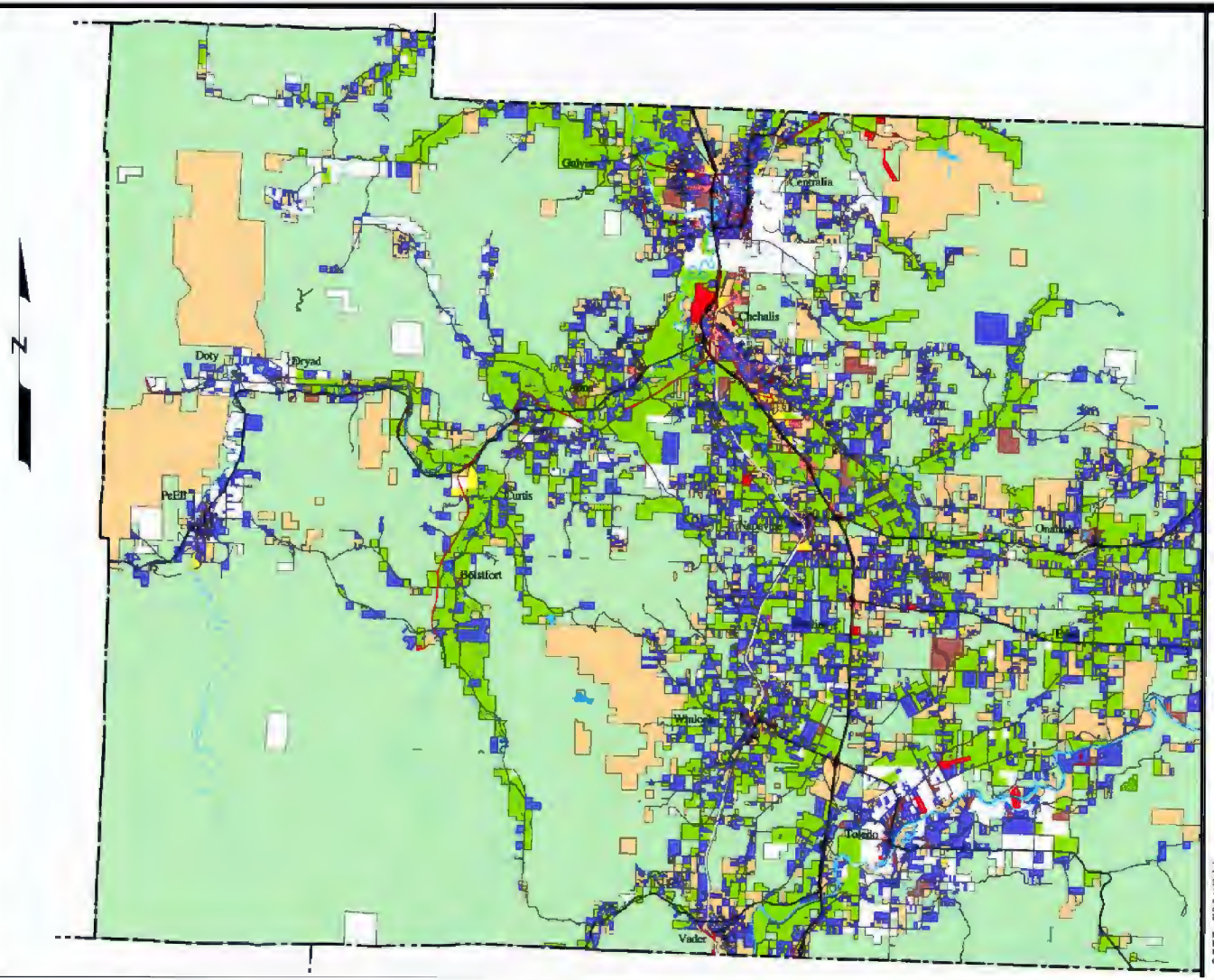
	Date	Auth. No.	Address / Parcel No.	Action / Status	Notes
	08/11/86	347-B	Valley View Subdivision	Annexation	"Various Residential" Multi - Residential
	06/09/86	342-B	2488 NE Kresky TP # 21837-004-002	Annexation	Sixteen Age Mill Park Vested Residential
*	03/25/02	720-B	Dist 1500 Block N National Ave.	"Dual Zone"	May Develop as CG Zone
**	07/01/03	750-B	State Ave. S. Zone	"Dual Zone"	May Develop as CG Zone
	07/12/04	769-B	Various	Rezones	See Ordinance
	10/19/04	Admin	017667-003-003	Correction	Split Zone Property
	07/19/05	785-B	016715-023-000 & 017482-011-000	Rezones	See Ordinance
	07/19/05	785-B	Holloway Springs	Exchange UGA	Napavine
	12/20/05	Admin	Various	Add UGA	County Ordinance
X	01/04/06	Admin	Various	Add Identification	1997 HMGP Buyout
	06/10/06	GM+IB	Various	Invalid UGA	See Decision
	06/10/06	806-S	Various	Rezone	See Ordinance
	13/02/06	GM+IB	Various	UGA Reconsideration	See Decision
	06/25/07	819-B	Various	Rezones	See Decision
	08/27/07	821-B	Urban Growth Area	Rezone All Res. To R-UGA	See Ordinance
	07/28/08	834-B	Various	Rezones	See Ordinance
	12/22/08	Admin	Various	Add UGA	County Ordinance
	13/01/09	847-B	Various	Rezone	See Ordinance

CITY OF CHEHALIS ENGINEERING

OFFICIAL ZONING MAP

DATE: OCTOBER 2009

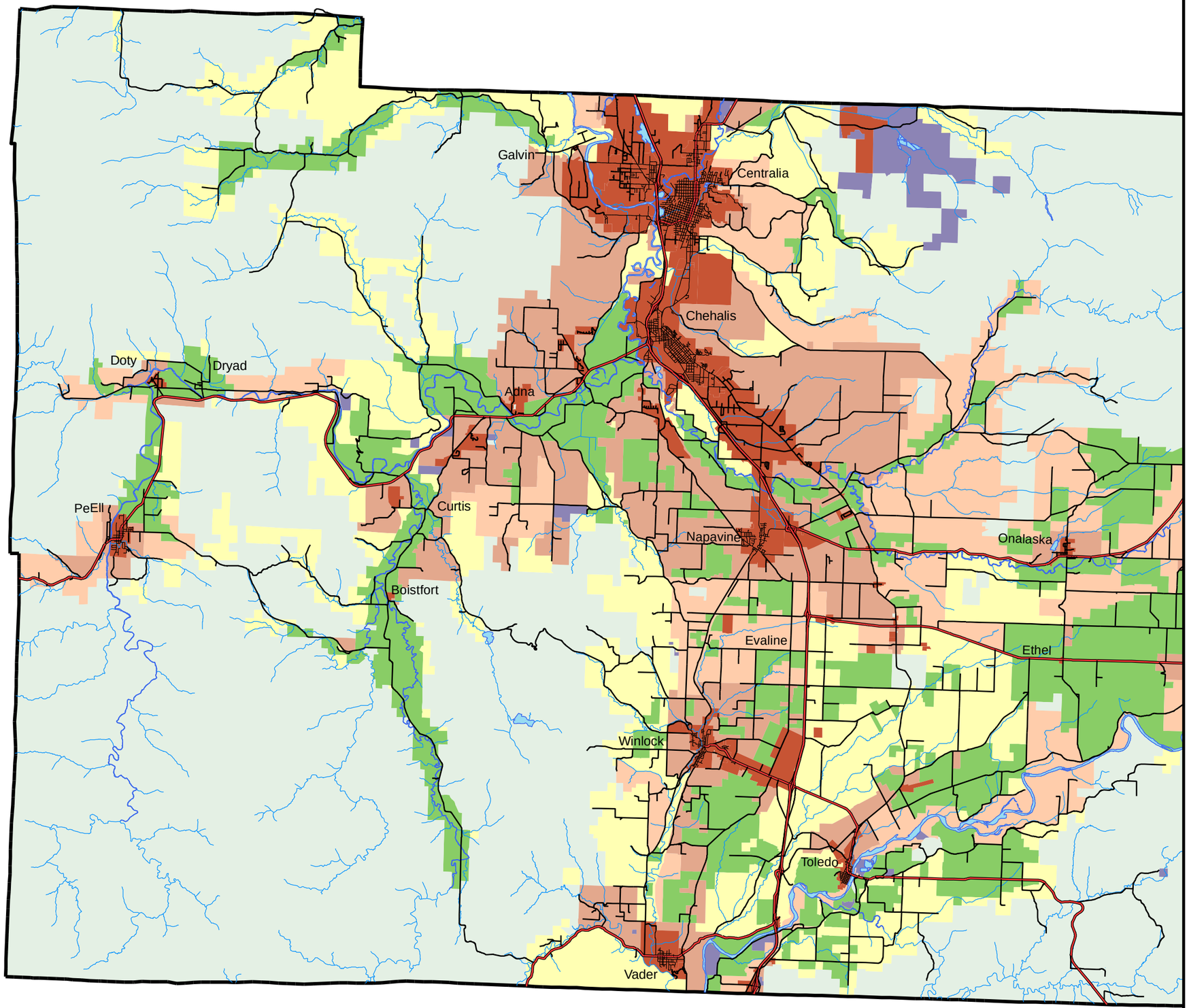




This map was compiled by Lewis County Geographic Information Services. The base map was developed by the Washington State Department of Natural Resources by scanning and digitizing United States Geological Survey 1:24,000 quadrangle maps. The accuracy of the map has not been verified, and it should be used for informational purposes only. Any possible discrepancies should be brought to the attention of Lewis County Geographic Information Services.

ATTACHMENT 2

Future Land Use Information



Lewis County, Washington

Comprehensive Plan

Figure 4.17 (a)

FUTURE LAND USE RURAL LANDS

Adopted and Ratified by the Board of County Commissioners April 4, 2002 pursuant to Ordinance 1179

Revised December 14, 2009

0 0.5 1 2 3 4 5 Miles

Legend

- RDD Zoning 1 Dwelling per 5 Acres
- RDD Zoning 1 Dwelling per 10 Acres
- RDD Zoning 1 Dwelling per 20 Acres
- Cities, UGAs and LAMRIDS
- Agricultural Resource Lands
- Forest Resource Lands and Parks
- Mineral Resource Lands

This map was compiled by Lewis County Geographic Information Services. The base map was developed by the Washinghton State Department of Natural Resouces by scanning and digitizing United States Geological Survey 1:24,000 quadrangle maps. The accuracy of the map has not been verified, and it should be used for informational purposes only. Any possible discrepancies should be brought to the attention of Lewis County Geographic Information Services.

Projection: Lamber Conformal Conic
Datum: 1983 North American Datum
U.S.G.S. State Plane Zone 5626

Date: March 23, 2010

File: O:\maps\planning\compplan2010\future_land_use_1.rtl

May 2010 Water Level Measurement and Monitoring Well Network Assessment Report

Hamilton/Labree Roads Superfund Site

Final Report on the May 2010 Water Level Measurement and Monitoring Well Network Assessment

Prepared by EPA Region 10
Office of Environmental Assessment
Marcia Knadle, Hydrogeologist

June 15, 2011

Introduction

On May 10, 2010, a team from the U.S. Environmental Protection Agency Region 10 office measured water levels and assessed the condition of most of the monitoring wells at the Hamilton/Labree Roads Superfund Site in Chehalis, Washington. A subset of wells had been sampled and measured in 2007, but many of the wells had not been measured since 2004. Additionally, two private wells were also measured in areas with poor monitoring well coverage. The site is in the process of completing the Remedial Investigation and Feasibility Study (RI/FS) for the Hamilton Road Impact Area (OU 1). EPA site managers desired an up-to-date water level measurement and an assessment of the condition of site wells. The cost of any selected remedial action could be impacted if many of the monitoring wells need replacement or repair.

The field personnel included Tamara Langton, Remedial Project Manager for the site, and Marcia Knadle, Office of Environmental Assessment (OEA) hydrogeologist for the site, as well as OEA hydrogeologists Bernie Zavala and Rebecca Gerhart.

The site consists of two operable units: OU 1 is the Hamilton Road Impact Area (HRIA), a tetrachloroethylene (PCE) DNAPL source area along and immediately downgradient of Berwick Creek in the eastern portion of the site, and OU 2 includes the suspected PCE source areas at the Breen Property and Thurman Berwick Creek properties, as well as the plume extending downgradient to the north-northwest (see Figure 1). Site groundwater flow direction is generally west-northwest between the HRIA and Labree Road, and then turns north-northwest downgradient of Labree Road, generally following the surface water features, Berwick and Dillenbaugh Creeks. The PCE plume is in a shallow aquifer comprised of glacial outwash deposits, mainly heterogeneous silty sands and gravels with occasional silt lenses. Groundwater seepage velocities are likely within the range of 50 to 150 feet/year. The aquifer occurs generally between 5 and 50 ft deep and is stratified over much of the site, with the upper and lower halves of the aquifer exhibiting dramatically different concentrations over much of the site.

Water Level Measurements

Field data and observations, as well as basic information about site wells, are summarized on Table 1.

Monitoring wells

Water levels were measured from markings at the top of the inner PVC casing with an electric water level sounding device. If no marking was visible, the measurement was taken from the north edge of the casing. Water levels and notes as to the condition of wells were recorded in field notebooks.

Besides measuring the water levels, the field crew replaced most of the locks, many of which either had no key or were in such poor condition that they had to be removed with

bolt cutters. In many of the wells with flush mount completions, there was nothing for the locks to anchor to. In this case, the well cap was simply lifted in order to access the well, and any existing locks were left in place "for show." If there was no lock in place, none was left "for show." No lock was installed on one well with an above-ground well completion because there was a yellow jacket nest in the well housing. This well is located within a locked fenced area, so the risk of well tampering is low. The replacement lock numbers were generally recorded in the field notebooks for future reference, but this was overlooked in the case of a few wells.

Three flush mount monitoring wells located on the Breen property (MW-27, MW-29, and MW-30) have caps that require a special tool to open. EPA doesn't have this tool, so the field team was unable to access them. The wells appear to be in good condition. It's possible that some of the other wells that could not be accessed on the Breen OU would also require this tool to open.

Three monitoring wells were difficult or unsafe to access and were not measured or assessed. Two of them (MW-9 and MW-10) are located between Berwick Creek and the southwest edge of I-5 and would have required either parking along the freeway to access or crossing Berwick Creek, which had relatively high flow at the time. One (MW-28) is located far downgradient, and EPA had no access agreement with the property owner.

Private Wells

Three privately owned wells were selected for water level measurement because they help define the southern/southwestern boundary of the plume: one currently used domestic well located west of the downgradient portion of the plume, one unused former domestic well located on the southwestern margin of the plume, and one unused former dairy well located near the south edge of the plume south of the source areas. The elevations of the tops of all 3 wells had been surveyed previously. Water levels were measured from the well cap with a steel tape marked with chalk. The dairy well was inaccessible because it was in a low concrete box surrounded by manure slurry, and the concrete box itself was flooded with water to the top of the open casing. It was deemed unsafe to access.

Water Level Surface Mapping

Water level contours were hand drawn on maps. Water levels in the two measured downgradient wells are consistent with the site-wide gradient pattern shown on historical maps (see Figure 1). No site-wide map for May 2010 is presented because the combination of the inclusion of PW-34 and the absence of a measurement from farthest downgradient monitoring well MW-28 (to which the team was unable to obtain legal access) skews the downfield water level contours to the west. The contours in the vicinity of the source areas (Figure 2) generally compare well to earlier water level maps, even with many missing wells. However, there are some differences. In particular, the loss of access to the wells northeast of I-5 and in the southern portion of the HRIA limits and slightly alters the gradient pattern in the HRIA. The water level in MW-32 was so

inconsistent compared to nearby wells that it was largely ignored. The water level in this well has also been anomalously high in earlier water level measurements.

Well Network Status

Many wells were found to be inaccessible for a variety of reasons. Several have been graveled over, either because they are located along road rights-of way where shoulders have been re-graded or because they are located in parking lots which have had additional gravel spread over them. It's possible these wells could be relocated with the use of a metal detector and excavated. However, the upgradient wells located along the northeast shoulder of I-5, may be buried too deeply, especially the northern ones, which are likely beneath the buildup for the new Labree Road exit ramp. In any event, these wells are difficult to access because of the safety issues related to parking along I-5. If they are located and excavated, they should be abandoned.

Two wells (MWR-11 and MW-607), located on the former United Rentals property, have been paved over by parking lot asphalt. These wells could probably be relocated, but it would be difficult to excavate them out. The well cap for one well (MWR-10), located in another parking lot on the same property, has been damaged and can't be removed. It's possible a well driller could remove and replace the cap.

One well (MW-31) was apparently buried under a 3-4 ft high pile of clayey dirt some time before the July 2007 sampling event. It's also possible that it's under some old boards and other wood debris along Berwick Creek, but the dirt pile matches the surveyed location better. This well could be excavated.

The condition of the monitoring well network in the area of the HRIA and the Breen and Thurman Berwick properties is summarized on Figure 5.

Recommendations

Excavate buried monitoring wells and either repair/rehabilitate them or properly abandon them per WAC 173-160-415. This may not be practicable for the buried wells on the NE side of I-5. Moreover, because the groundwater is not contaminated in that area, there are no serious implications associated with leaving these wells in place.

Abandon wells with long screens, particularly wells in the HRIA source area. There are several wells (MW-600 through MW-608) along Hamilton Road in the HRIA and immediately downgradient that were installed by URS in 2003. They were intended to be extraction wells and were screened across the entire shallow aquifer. Michael Meyer at URS (Pers. Comm., 2010a) says that URS had recommended at the time of drilling that if the wells were not promptly put into service as extraction wells, they should be abandoned so as not to provide pathways for contamination to migrate vertically within the aquifer. This recommendation was not implemented by EPA, which may have lead to

some migration of PCE from the upper zone to the lower zone of the shallow aquifer, especially if local vertical gradients are downward or if mobile PCE DNAPL can enter the wells. (There are very few well clusters across the site, so EPA's understanding of vertical gradients is very limited. There's some indication that they may vary with proximity to the creeks, but this may vary seasonally and/or along the creek reach.) The primary implication is that the 2003-2004 plume characterization data EPA is using as the basis for its RI/FS may no longer be accurate: the deeper zone in OU 1 may be more contaminated than EPA realizes. Moreover, the usefulness of the water levels is somewhat limited since they integrate water levels within the aquifer. As such, they may not compare well to water levels collected in wells with more restricted screened intervals. Unless these wells would be used as part of the selected remedy, they should be abandoned, even after several years. Other long screened wells installed earlier in the HRIA should also be abandoned, including MWR-8, MWR-9, MWR-10, and MWR-11. In addition, there is one long-screened well on the Breen Property, MW-34. This well is located in the most contaminated area on the Breen Property and should also be abandoned.

Resurvey the remaining monitoring well network. Monitoring wells MW-33 and MW-34 have apparently never been surveyed vertically, although horizontal survey information exists. Consequently, although the water levels were measured, groundwater elevations cannot be determined. MW-33 is especially important as part of one of the few existing shallow aquifer well clusters. Surveying it would provide a vertical gradient measurement close to the HRIA. MW-34 should be surveyed prior to any abandonment in order to make the existing water level measurements usable. In addition, there are several wells with water levels that appear anomalous relative to the mapped piezometric field, in particular MW-32 and MW-5. Minor inconsistencies (perhaps up to a few tenths of a foot) may be due to the wide range of screened intervals and the presence of minor vertical gradients over portions of the site. Larger inconsistencies suggest either a measurement error or that the well casing elevation has changed since 2004. Finally, a number of wells have been graded over or otherwise possibly disturbed in ways that could change their wellhead elevation.

Acquire the special tool to open the three wells (and possibly more) that require it. Scott Elkind (Parametrix) (Pers. Comm., 2010b) says that they were able to open some of those wells in 2007 using a 5/16" hex wrench (which we didn't have), so that could also be attempted. However, the tool designed to work with those caps would probably work better and be less likely to strip the bolts, so EPA should contact a well driller to acquire one.

Drill two new piezometers on properties to the northeast of I-5 for water levels only. These piezometers should have above ground completions if at all possible, since flush mount completions are apparently much more difficult to maintain long term. These locations appear to be important for defining the flow field in the area of the HRIA PCE source.

References

Parametrix, 2010. Hamilton Road Impact Area Draft Final Remedial Investigation Report, Revision 3. March 2010.

Personal Communication, 2010a. Conversation with Michael Meyer, URS. August 17, 2010.

Personal Communication, 2010b. Email from Scott Elkind, Parametrix. May 12, 2010.

Table 1. Hamilton/Labree Superfund Site
Monitoring Well Network Status and May 2010 Water Levels

General location	Well ID	W/L (DTW) 05/10/10*	W/L Elev. 05/10/10	Total depth	Screen interval	Screen length	Aquifer zone**	TOC elev.	Well Completion	Historic range of DTW	Northing	Easting	Max PCE (ppm)	Inst. Year	Key #	Well Status/Comments
HRIA (12)																*Between I-5 and N Hamilton Rd*
	MW-9	NM		50	29.5-49.5	20	Deep	206.73	?	1.35-5.70	479562.93	1030184.38	44	2000		Difficult to access (from I-5). Decided didn't need -- well condition not assessed
	MW-10	NM		50	29.5-49.5	20	Deep	207.8	?	2.34-6.67	479433.18	1030283.38	ND	2000		Difficult to access (from I-5). Decided didn't need -- well condition not assessed
	MWR-1	3.6	**205.34**	39	17-27	10	Shallow	208.94	Flush	3.59-8.06	479537.35	1030127.63	97	1999	1G022	
	MWR-2	4.1	**205.29**	28	17-27	10	Shallow	209.39	Flush	4.15-8.49	479585.16	1030091.93	34	1999	27353	
	MWR-3	3	**205.25**	24	14-24	10	Shallow	208.25	Flush	3.27-7.43	479678.84	1030017.56	0.55	1999	27353	
	MWR-4	3	**204.32**	26	16-26	10	Shallow	207.32	Flush	3.03-7.26	479749.65	1029934.11	8.8	1999	27353	
	MWR-5	3	**205.51**	28	18-28	10	Shallow	208.51	Flush	3.03-7.57	479447.72	1030197.89	89	1999	1G022	
	MW-600	3.8	**205.40**	35	7-35	28	Both	209.2	Flush	5.04	479428.5	1030226.8	77	2003	27353	
	MW-601	3.3	**205.41**	40	7-40	33	Both	208.71	Flush	4.84	479469	1030195.3	84	2003	27353	
	MW-602	2.64	**205.39**	40	7-40	33	Both	208.03	Flush	4.06	479519.2	1030160.1	2720	2003	27353?	
	MW-603	2.4	**205.39**	37	7-37	30	Both	207.79	Flush	3.82	479558.3	1030131	16	2003	27353	
	MW-604	3.65	**205.41**	37	7-37	30	Both	209.06	Flush	4.55	479479.4	1030168.42	35	2003	no lock	
United Rentals (11)																*W of N Hamilton Rd*
	MWR-6	1.1	**205.09**	26	16-26	10	Shallow	206.19	Flush	1.29-6.00	479427.5	1030145.46	37	1999	1G022	
	MWR-7	NM		28	17-27	10	Shallow	206.65	Flush	2.10-6.39	479534.07	1030024.54	6.8	1999		Graveled over
	MWR-8	NM		51.5	10-50	40	Both	207.17	Flush	1.99-6.44	479525	1030073.69	2.4	2000		Graveled over
	MWR-9	1.35	**205.09**	49	19-49	30	Both (D)	206.44	Flush	1.37-5.92	479597.58	1030001.56	1	2000	no lock	
	MWR-10	NM		50	19-49	30	Both (D)	206.78	Flush	3.36-7.57	479486.65	1029997.7	3.9	2000		Cap is broken -- can't remove
	MWR-11	NM		50	19-49	30	Both (D)	206.78	Flush	3.32-7.71	479385.01	1029957.59	0.11	2000		Paved over
	MW-605	2.75	**204.48**	50	10-50	40	Both	207.23	Flush	4.22	479425.9	1030114.5	55	2003	1G022	
	MW-606	NM		40	20-40	20	Both (D)	206.83	Flush	5.71	479285.2	1030036.2	0.055	2003		Graveled over
	MW-607	NM		40	20-40	20	Both (D)	206.88	Flush	6.04	479389.9	1029933.7	0.22	2003		Paved over
	MW-608	3.73	**201.86**	46	26-46	20	Deep	205.59	Flush	5.9	479744.8	1029734.6	1.5	2003	1G022?	
	MW-3	6.35	**201.89**	46	35-45	10	Deep	208.24	Above ground	4.05-10.52	479649.17	1029675.86	1.3	1997	no lock	No lock installed due to bees
Breen OU, SE corner (2)																*Access from N Hamilton Rd*
	MW-5	7.72	**202.57**	49	38-48	10	Deep	210.29	Above ground	6.61-11.88	479886.9	1029762.65	0.007	1997	1G022	Cluster with MW-33
	MW-33	7.6		25	13-25	12	Shallow		Above ground	Not measured	479891.50	1029767.65	1.1	2004	27353	Cluster with MW-5
Balmelli Field (4)																*Between UR and Thurman Property*
	MW-22	6.2	**200.37**	25.5	15-25	10	Shallow	206.57	Above ground	6.27-10.05	479784.75	1029354.27	0.04	2002	27353	
	MW-23	6.15	**200.36**	47	36.5-46.5	10	Deep	206.51	Above ground	6.17-9.98	479777.55	1029355.52	0.87	2002	1G022	
	MW-24	5.4	**200.56**	46	35-45.5	10.5	Deep	205.96	Above ground	5.39-9.25	479604.50	1029345.86	0.9	2002	1G022	
	MW-32	3.9	**200.80**	24.5	14-24	10	Shallow	204.7	Above ground	5.83-5.91	479809.34	1029168.83	2.7	2003	27353	Along N Hamilton Rd just E of Thurman Prop.
Thurman Property (1)																*E of intersection of N. Hamilton Rd and Labree Rd*
	MW-31	NM		25.5	15-25	10	Shallow	202.65	Flush?	5.17	479821.03	1029074.48	2.3	2003		Buried by a pile of dirt/debris - inaccessible
Breen Property (15)																
	MW-1	3.15	**200.35**	47	36-46	10	Deep	203.5	Flush	1.66-6.97	480429.97	1029435.33	ND	1997	no lock	
	MW-2	NM		47	36-46	10	Deep	204.69	Flush	2.86-9.18	480111.19	1029118.99	0.5	1997		Graveled over
	MW-6	6.2	**200.23**	49	37-47	10	Deep	206.43	Flush	4.61-10.01	479955.44	1029414.61	0.37	1997	no lock	Original "show lock" left in place
	MW-7	3.35	**198.41**	45	34-44	10	Deep	201.76	Flush	1.97-6.8	480358.72	1029119.02	0.17	1997	no lock	
	MW-8	3.7	**199.02**	46	35-45	10	Deep	202.72	Flush	2.2-7.29	479941.53	1029053.19	2.1	1997	no lock	
	MW-17	2.85	**198.67**	26	10-25	15	Shallow	201.52	Flush	2.92-6.44	480272.19	1029088.68	0.002	2002	no lock	Well tag says MW-19; Original "show lock" left in place
	MW-18	3.1	**198.46**	48.5	38-48	10	Deep	201.56	Flush	3.09-6.56	480265.53	1029087.33	0.089	2002	no lock	
	MW-19	5.4	**197.77**	47.5	38.5-48.5	10	Deep	203.17	Above ground	5.39-8.78	480162.96	1028934.22	1.6	2002	1G022	
	MW-20	5.8	**198.18**	26	15-25	10	Shallow	203.98	Above ground	5.76-9.14	479938.02	1028929.94	1.2	2002	27353	
	MW-21	6.07	**198.22**	45	34.5-44.5	10	Deep	204.29	Above ground	6.04-9.44	479931.95	1028930.25	1.8	2002	27353	
	MW-26	NM		25	15-25	10	Shallow	205.5	Flush	6.63	480020.58	1029419.79	0.03	2003		Graveled over
	MW-27	NM		45	27-42	15	Deep	203.02	Flush	5.72	480059.90	1029039.66	1.5	2003		Need special tool to access
	MW-29	NM		25.5	15.5-25.5	10	Shallow	203.8	Flush	5.59	479905.43	1029190.84	0.14	2003		Need special tool to access
	MW-30	NM		46	36-46	10	Deep	203.68	Flush	5.22-5.30	479899.01	1029189.60	1.7	2003		Need special tool to access
	MW-34	3.15		46	10.5-45.5	35	Both		Flush	Not measured	479928.96	1029122.67	1.7	2004	no lock	
W of Labree Road (2)																
	MW-25	5.55	**190.13**	44	33-43	10	Deep	195.68	Above ground	5.54-8.60	481544.18	1028991.32	0.76	2002	1G022	
	MW-28	NM		37	16.5-36.5	20	Both	182.32	Above ground?	5.22	485398.16	1024977.09	ND	2003		No access agreement -- well condition not assessed
E shoulder of I-5 (6)																
	MW-11	NM		47.5	27-47	20	Deep	207.43	Flush	1.09-5.64	479823.35	1030227.31	ND	2001		Graveled over
	MW-12	NM		49.5	29-49	20	Deep	208.37	Flush	Not measured	479748.07	1030284.46	ND	2001		Graveled over
	MW-13	NM		49.3	28.8-48.8	20	Deep	207.93	Flush	1.9	479645.59	1030365.91	ND	2001		Graveled over
	MW-14	NM		49	28.8-48.8	20	Deep	209.09	Flush	2.40-6.98	479554.59	1030429.58	ND	2001		Graveled over
	MW-15	NM		48.6	28-48	20	Deep	209.61	Flush	2.97-3.83	479464.42	1030498.51	ND	2001		Graveled over
	MW-16	NM		48.5	28-48	20	Deep	207.91	Flush	2.12	479899.3	1030165.37	ND	2001		Graveled over
Domestic drinking water wells																*Along S and W margin of plume; MPs all top of casing*
	PW-4	NM		?	?	?	?	203.37	Above ground	5.25	479063	1029140	prob. ND now			Well surrounded by water/manure slurry -- unsafe to access
	PW-21	5.33	**193.83**	31	open end	<1	Deep	199.16	Above ground	5.69-7.64	479749	1027000	0.0053			Well located in SE corner of yard under bucket
	PW-34	2.25	**186.62**	?	?	?	?	188.87	Above ground	5.24	482505	1025120	ND			Had been running laundry. W/L meas. taken 4-5 min apart barely changed - nearly static.

Notes:
* All W/Ls were measured by electric tape except the PW wells (steel tape with chalk)
** In general, ≤25 ft is shallow zone; >25 ft is deep zone. All units are feet unless otherwise indicated

Summary:
Total 53 monitoring wells + 3 domestic wells
Measured 34 water levels (32 from monitoring wells, 2 from private wells)
Did not attempt to find 2 monitoring wells (MW-9 and MW-10) along the SW side of I-5 -- decided were redundant and somewhat unsafe to access
Did not attempt to find 1 monitoring well (MW-28) far downgradient due to lack of access agreement
Cound not measure 3 monitoring wells (MW-27, MW-29, MW-30) due to cap requiring special tool to remove -- Scott Elkind (Parametrix) says they got into MW-30 in 2007 with a 5/16" hex wrench.
Cound not measure one monitoring well (MWR-10) due to damaged cap
2 monitoring wells were paved over: MW-607 and MWR-11
11 monitoring wells were graveled over: MW-2, MW-11, MW-12, MW-13, MW-14, MW-15, MW-16, MW-26, MW-606, MWR-7, MWR-8
1 monitoring well (MW-31) is buried under dirt and/or debris
Did not measure one private well (PW-4) due to unsafe conditions around well

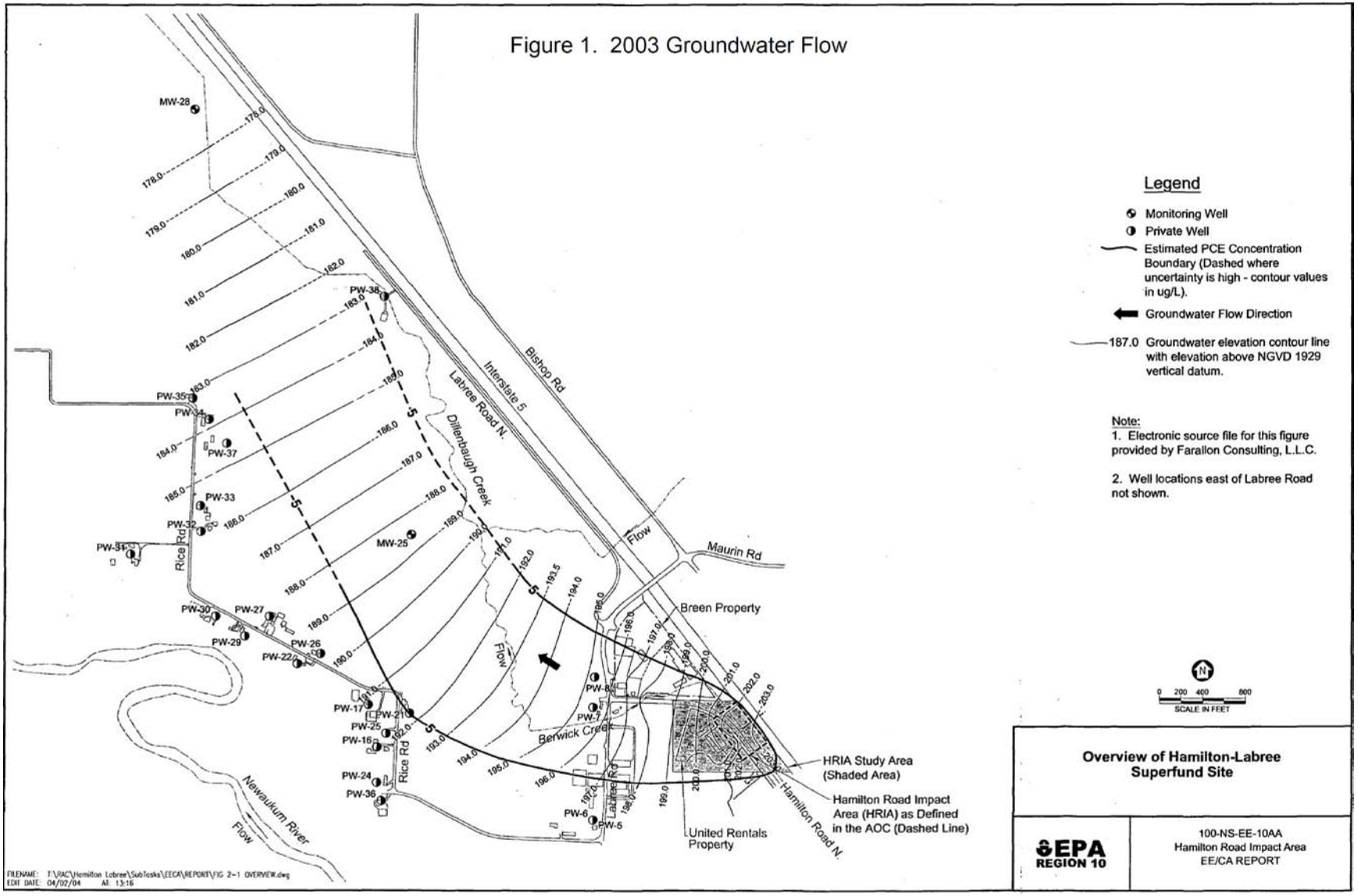


Figure 1. 2003 Groundwater Flow
Legend
Monitoring Well
Private Well
Estimated PCE Concentration Boundary (Dashed where uncertainty is high - contour values in ug/L).
Groundwater Flow Direction
187.0 Groundwater elevation contour line with elevation above NGVD 1929 vertical datum.
Note:
1. Electronic source file for this figure provided by Farallon Consulting, L.L.C.
2. Well locations east of Labree Road not shown.
SCALE IN FEET
Overview of Hamilton-Labree Superfund Site
EPA REGION 10
100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA REPORT
HRIA Study Area (Shaded Area)
Hamilton Road Impact Area (HRIA) as Defined in the AOC (Dashed Line)
Breen Property
United Rentals Property
Bishop Rd
Interstate 5
Labree Road N.
Dillenbaugh Creek
Maurin Rd
Rice Rd
Berwick Creek
Newaukum River
Flow
Hamilton Road N.
MW-28
MW-25
PW-38
PW-35
PW-34
PW-37
PW-33
PW-32
PW-31
PW-30
PW-29
PW-27
PW-26
PW-22
PW-17
PW-21
PW-25
PW-16
PW-24
PW-36
PW-8
PW-7
PW-6
PW-5
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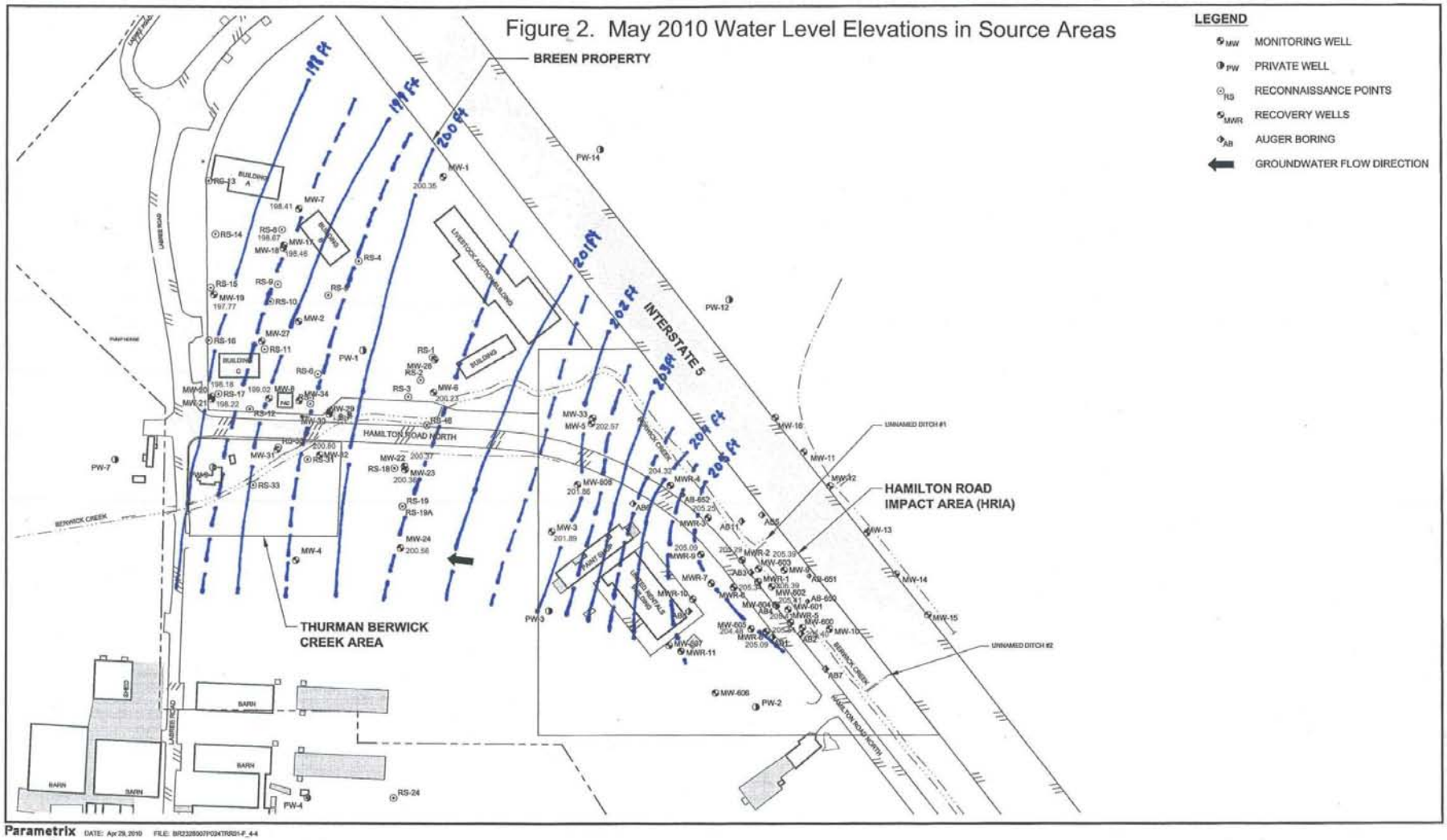
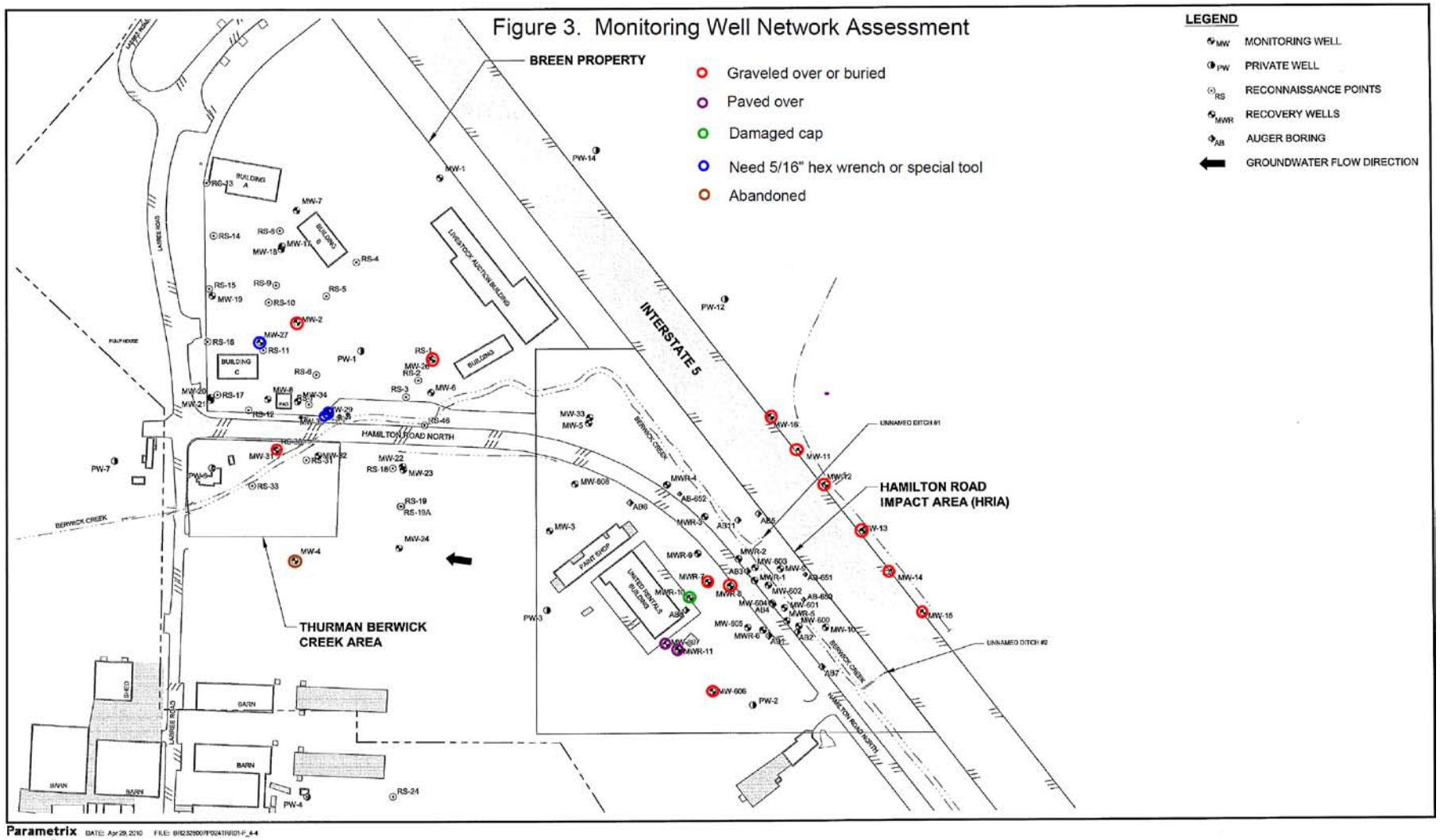
EDIT DATE: 04/02/04 AT: 13:16



Parametrix DATE: Apr 29, 2010 FILE: BR2328007P034TRR01-F_4.4

0 N 200
SCALE IN FEET

Hamilton/Labree Roads Superfund Site

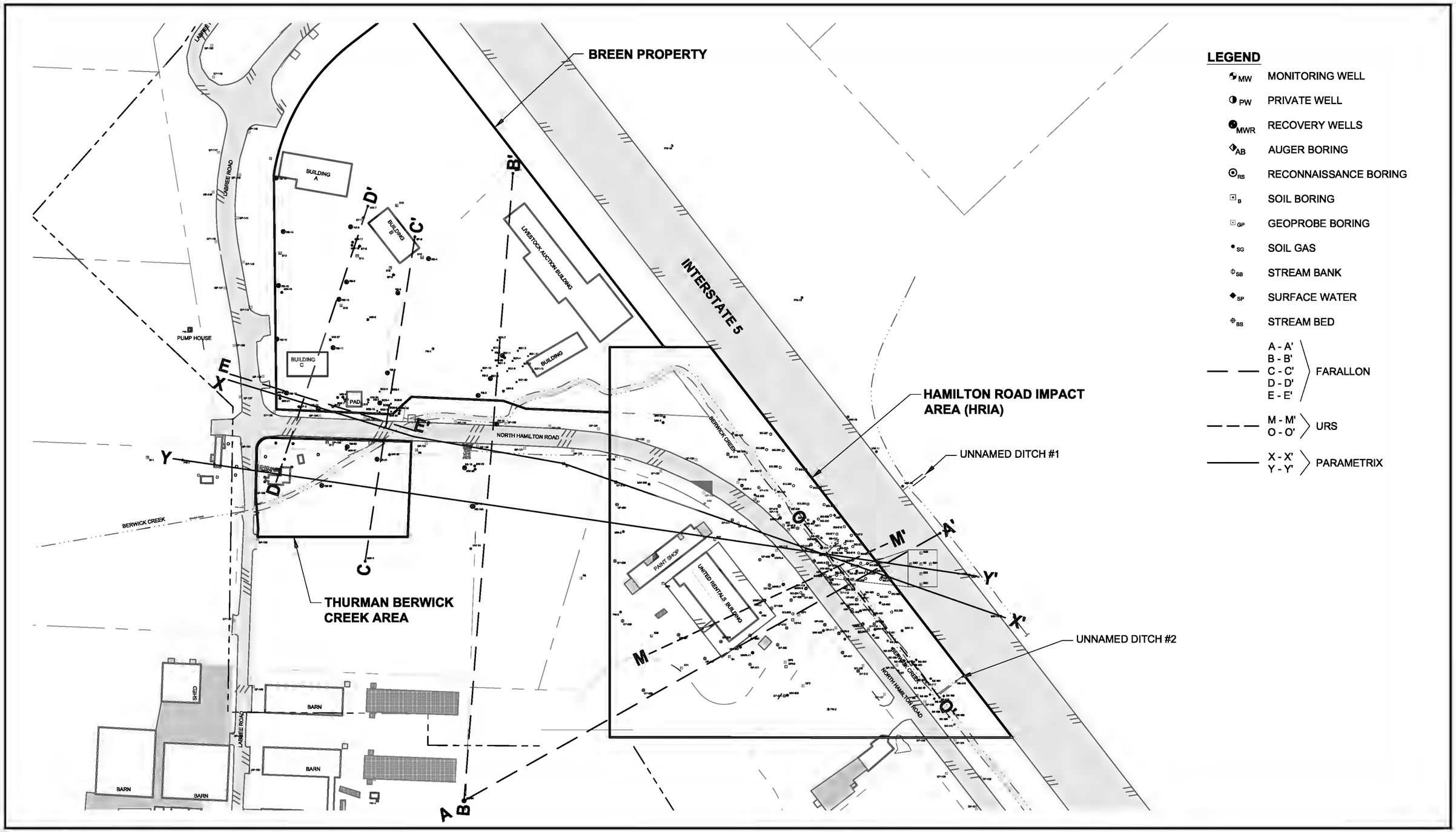


Parametrix DATE: Apr 29, 2010 FILE: 8162320007F024TRR01-F_4-4

0 N 200
SCALE IN FEET

Hamilton/Labree Roads Superfund Site

Appendix D
Geologic Cross-Sections and Isoconcentration Contour Maps



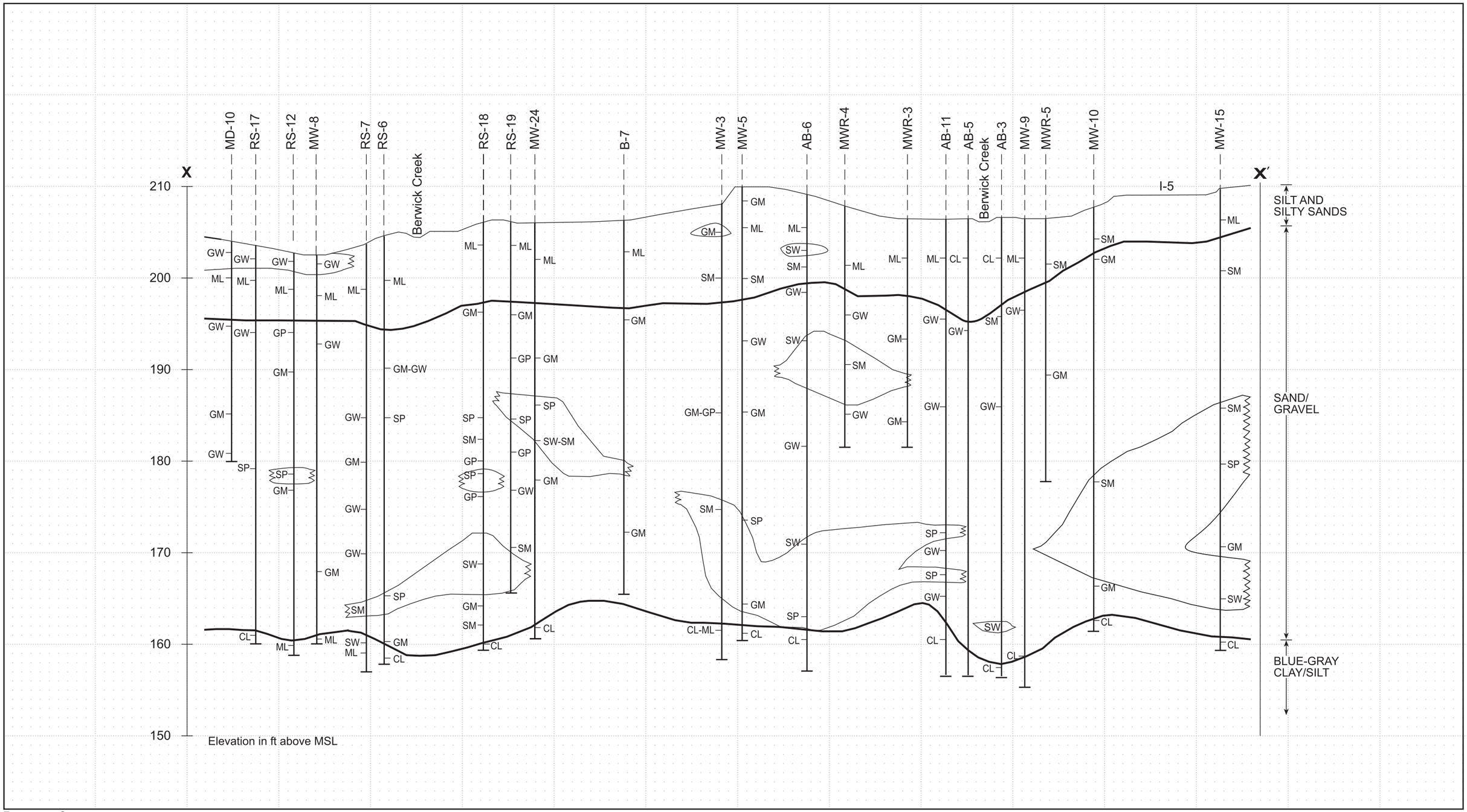
Parametrix DATE: Apr 30, 2009 FILE: BR2328007P024TRR01-F_A-1

N

0 200

SCALE IN FEET

Figure A-1
Hamilton/Labree Roads Superfund Site
Cross Section Overview

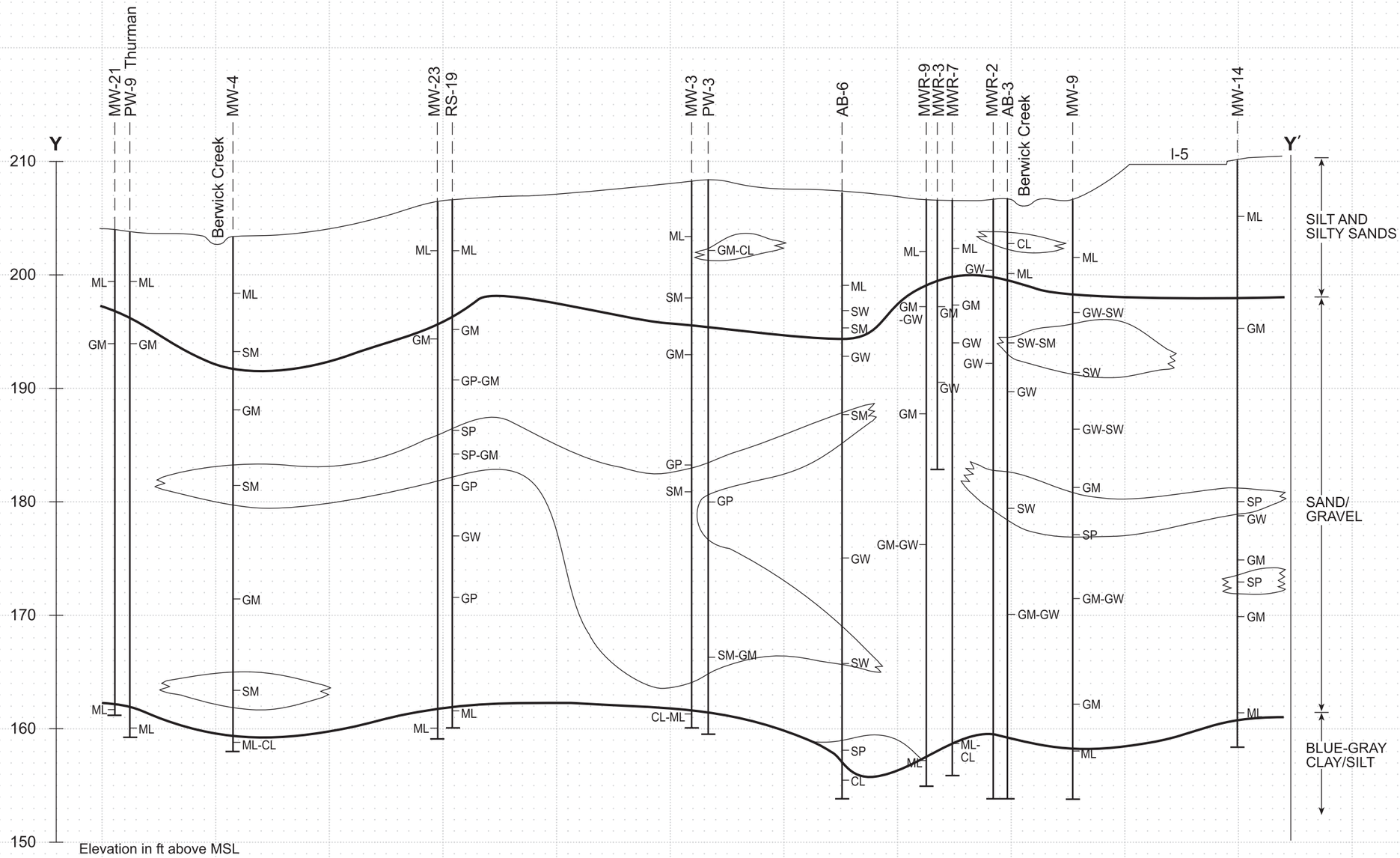


Parametrix 415-2328-007/024(RR01) 4/06 (B)

N

Scale: Horizontal 1" = 150ft
Vertical 1" = 10ft

Figure A-2
Hamilton/Labree Roads Superfund Site
Cross-Section X-X′



Parametrix 415-2328-007/024(RR01) 4/06 (B)

N

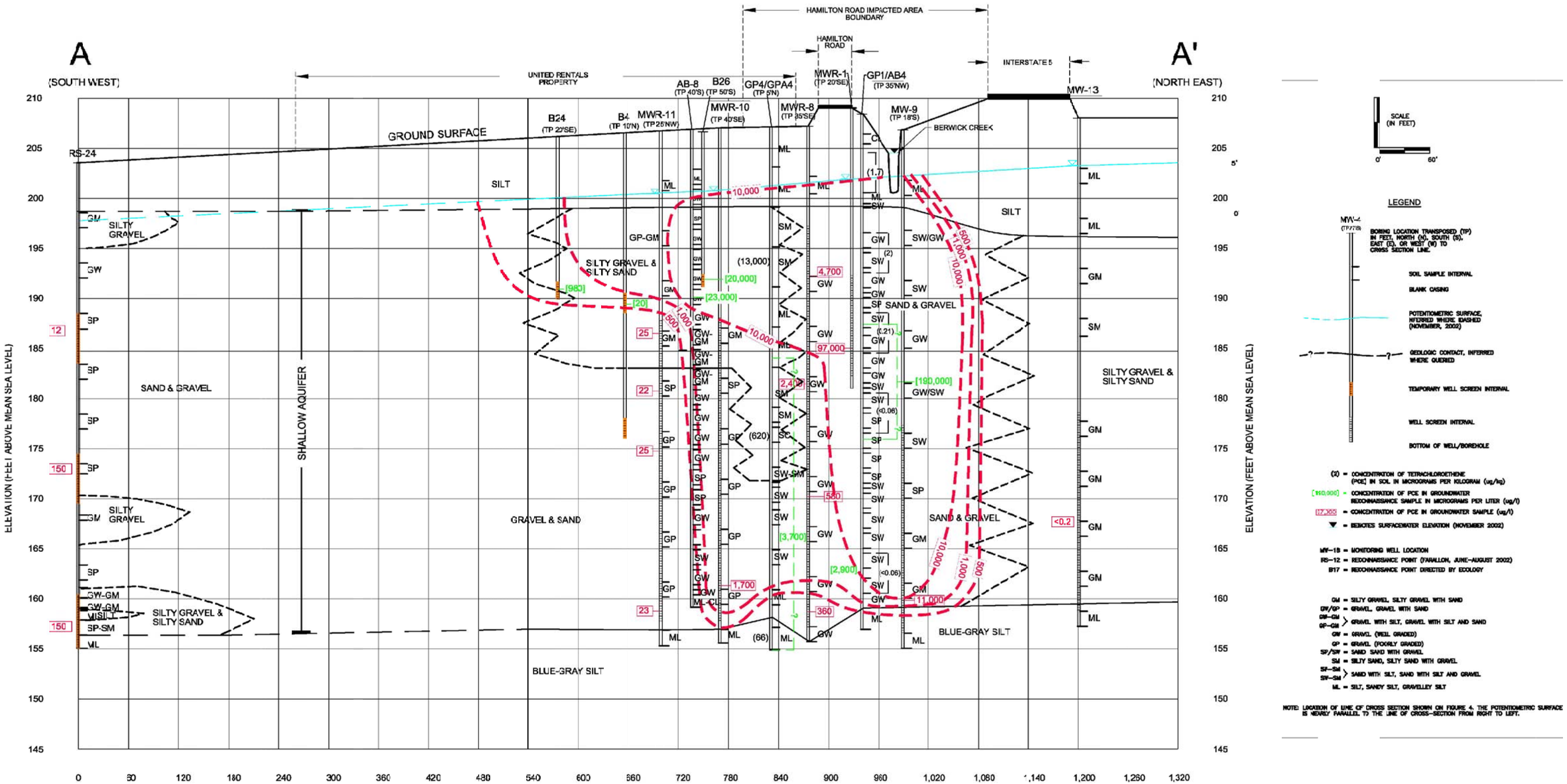
Scale: Horizontal 1" = 150ft
Vertical 1" = 10ft

Figure A-3
Hamilton/Labree Roads Superfund Site
Cross-Section Y-Y′

Additional Cross-Sections and Isoconcentration Contour Maps

Source: Farallon (2003)

URS (2004)



SCALE (IN FEET)

0' 60'

LEGEND

MW-4 (TP 77'S) — BORING LOCATION TRANSPOSED (TP) IN FEET, NORTH (N), SOUTH (S), EAST (E), OR WEST (W) TO CROSS SECTION LINE.

SOIL SAMPLE INTERVAL

BLANK CASING

POTENTIOMETRIC SURFACE, INFERRED WHERE DASHED (NOVEMBER, 2002)

GEOLOGIC CONTACT, INFERRED WHERE QUERIED

TEMPORARY WELL SCREEN INTERVAL

WELL SCREEN INTERVAL

BOTTOM OF WELL/BOREHOLE

(X) = CONCENTRATION OF TETRACHLOROETHENE (PCE) IN SOIL IN MICROGRAMS PER KILOGRAM (ug/kg)

[190,000] = CONCENTRATION OF PCE IN GROUNDWATER RECONNAISSANCE SAMPLE IN MICROGRAMS PER LITER (ug/l)

17,300 = CONCENTRATION OF PCE IN GROUNDWATER SAMPLE (ug/l)

▼ = DENOTES SURFACEWATER ELEVATION (NOVEMBER 2002)

MW-1B = MONITORING WELL LOCATION

RS-12 = RECONNAISSANCE POINT (FARALLON, JUNE-AUGUST 2002)

B17 = RECONNAISSANCE POINT DIRECTED BY ECOLOGY

GM = SILTY GRAVEL, SILTY GRAVEL WITH SAND

GW/GP = GRAVEL, GRAVEL WITH SAND

GW-GM, GP-GM = GRAVEL WITH SILT, GRAVEL WITH SILT AND SAND

GW = GRAVEL (WELL GRADED)

GP = GRAVEL (POORLY GRADED)

SP/SW = SAND SAND WITH GRAVEL

SM = SILTY SAND, SILTY SAND WITH GRAVEL

SP-SM, SW-SM = SAND WITH SILT, SAND WITH SILT AND GRAVEL

ML = SILT, SANDY SILT, GRAVELLEY SILT

NOTE: LOCATION OF LINE OF CROSS SECTION SHOWN ON FIGURE 4. THE POTENTIOMETRIC SURFACE IS NEARLY PARALLEL TO THE LINE OF CROSS-SECTION FROM RIGHT TO LEFT.

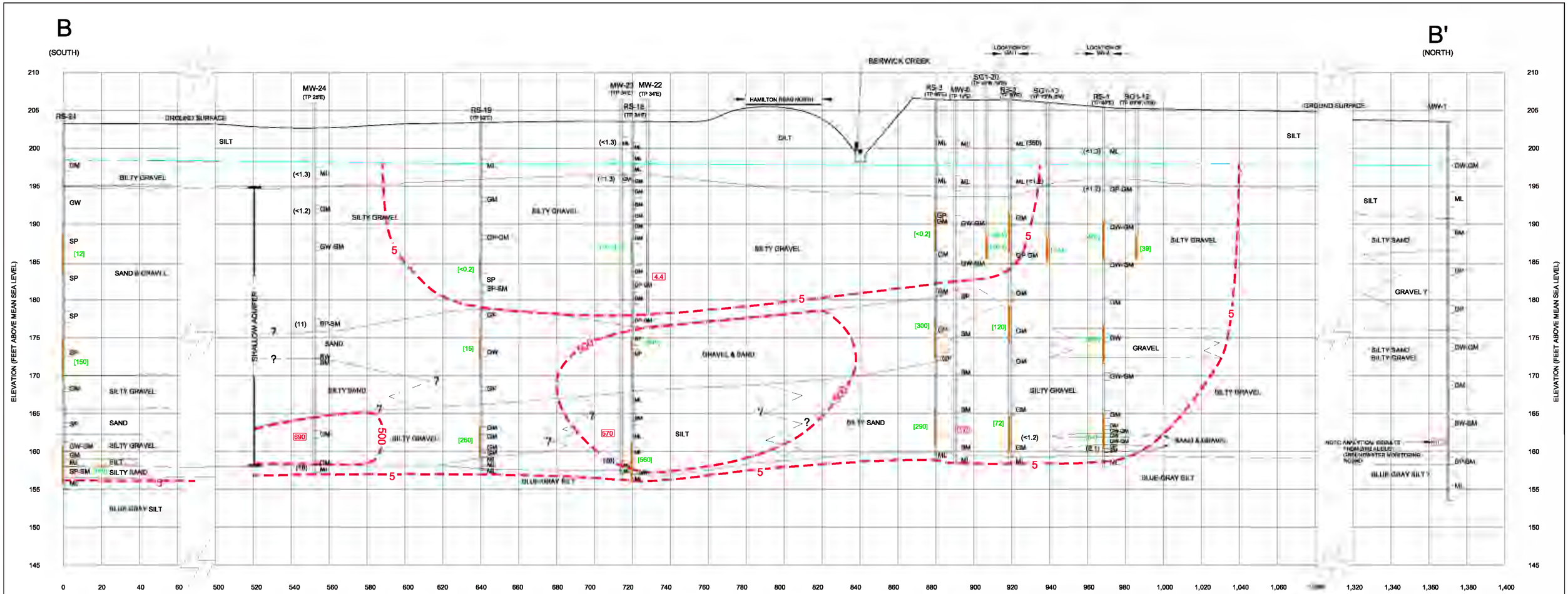
Sources:
1. Farallon Consulting (July, 2003)

Figure 2-3
Cross-Section A-A'

EPA REGION 10

Hamilton / Labree Roads Superfund Site

Date: August 9, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-3_Cross-Section A-A.mxd



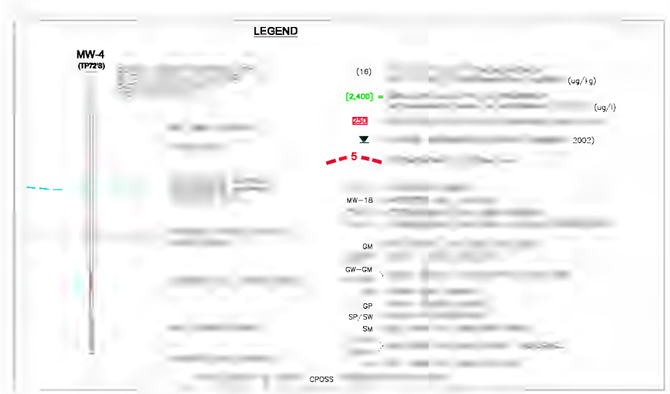
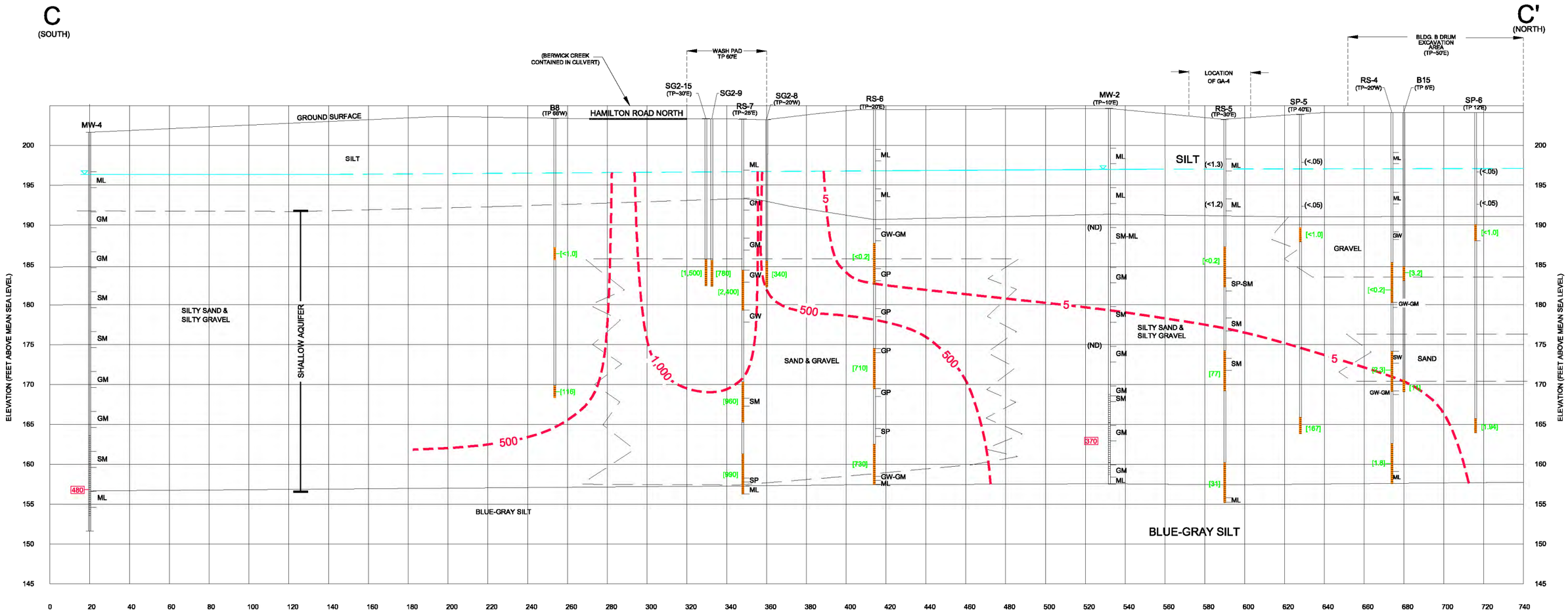


FIGURE 2-4

FARALLON CONSULTING
202 3rd Ave. N., Suite 200
Edmonds, WA 98027

FARALLON PN: 734-001

Drawn By:DAVID WEST	Checked By:CS, RC, JP	Date: 7/1/03	Disk Reference:734002



LEGEND

MW-4 (TP72'S) — BORING LOCATION TRANSPOSED (TP) IN FEET, NORTH (N), SOUTH (S), EAST (E), OR WEST (W) TO CROSS SECTION LINE.

SOIL SAMPLE INTERVAL

BLANK CASING

POTENTIOMETRIC SURFACE, DASHED WHERE INFERRED (NOVEMBER, 2002)

GEOLOGIC CONTACT, INFERRED WHERE QUERIED

TEMPORARY WELL SCREEN INTERVAL

WELL SCREEN INTERVAL

BOTTOM OF WELL/BOREHOLE

(<1.3) = CONCENTRATION OF TETRACHLORGETHENE (PCE) IN SOIL IN MICROGRAMS PER KILOGRAM (ug/kg)

[2,400] = CONCENTRATION OF PCE IN GROUNDWATER RECONNAISSANCE SAMPLE IN MICROGRAMS PER LITER (ug/l)

480 = CONCENTRATION OF PCE IN GROUNDWATER SAMPLE (ug/l)

= DENOTES SURFACEWATER ELEVATION (NOVEMBER 2002)

5 = ISOCONCENTRATION CONTOUR LINE

GA-4 = GEOPHYSICAL ANOMALY
MW-18 = MONITORING WELL LOCATION
RS-12 = RECONNAISSANCE POINT (FARALLON, JUNE-AUGUST 2002)
B17 = RECONNAISSANCE POINT DIRECTED BY ECOLOGY
SG2-9 = RECONNAISSANCE POINT (FARALLON, NOVEMBER 2002)
SP-5 = RECONNAISSANCE POINT DIRECTED BY BREEN
GM = SILTY GRAVEL, SILTY GRAVEL WITH SAND
GW/GP = GRAVEL, GRAVEL WITH SAND
GW-GM, GP-GM = GRAVEL WITH SILT, GRAVEL WITH SILT AND SAND
GW = GRAVEL (WELL GRADED)
GP = GRAVEL (POORLY GRADED)
SP/SW = SAND, SAND WITH GRAVEL
SM = SILTY SAND, SILTY SAND WITH GRAVEL
SP-SM, SW-SM = SAND WITH SILT, SAND WITH SILT AND GRAVEL
ML = SILT, SANDY SILT, GRAVELLEY SILT

NOTE: LOCATION OF LINE OF CROSS SECTION SHOWN ON FIGURE 4

SCALE (IN FEET) 5' 0' 0' 20'

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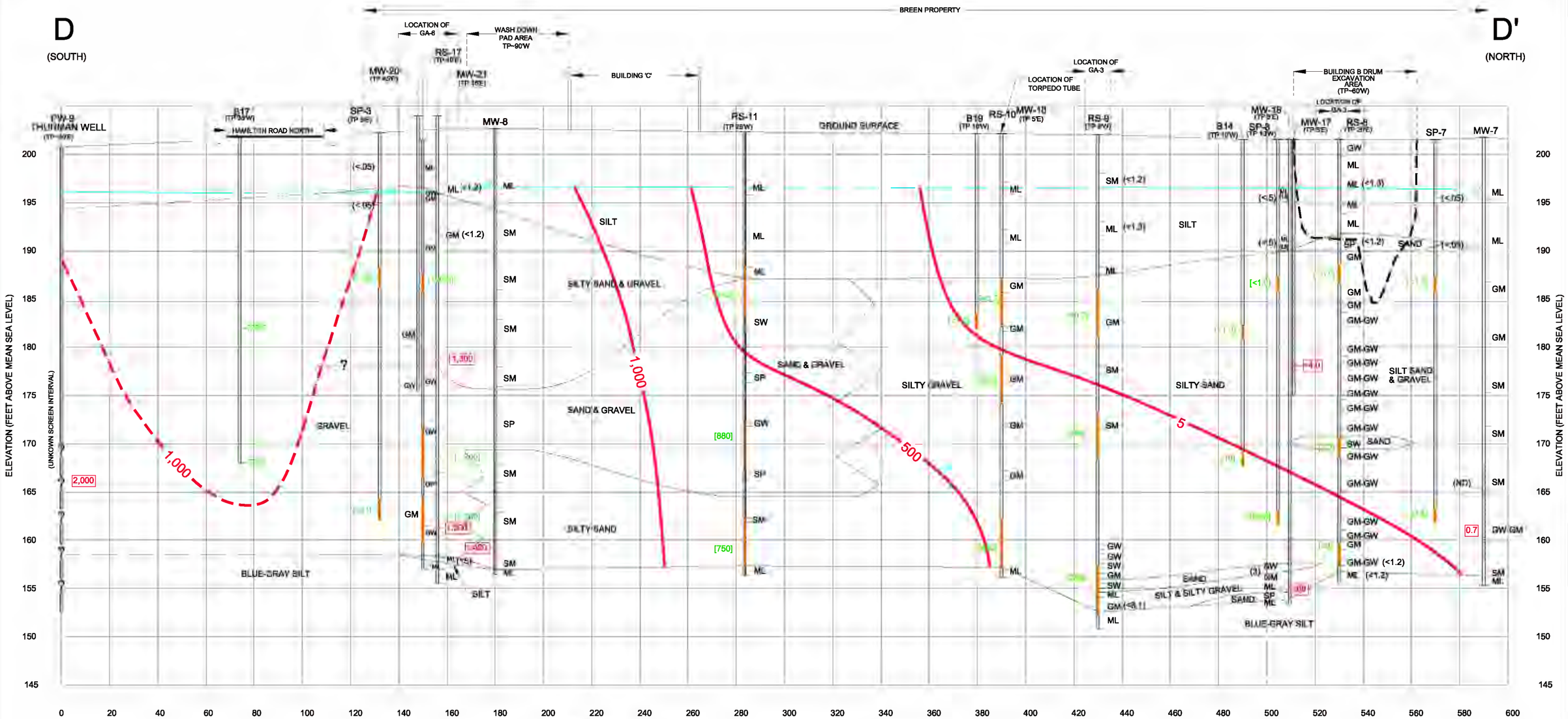
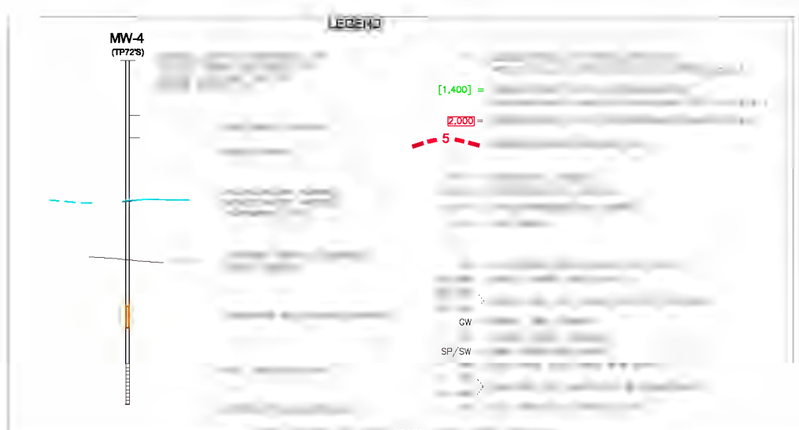
Issaquah, WA 98027

FIGURE 2-5
CROSS SECTION C-C'
REMEDIAL INVESTIGATION/ FEASIBILITY STUDY WORK PLAN
HAMILTON/LABREE ROADS GROUNDWATER CONTAMINATION SUPERFUND SITE
CHEHALIS, WASHINGTON

FARALLON PN: 734-001

Drawn By: DAVID WEST	Checked By: CS, RC, JP	Date: 7/1/03	Disk Reference: 734002





FARALLON CONSULTING
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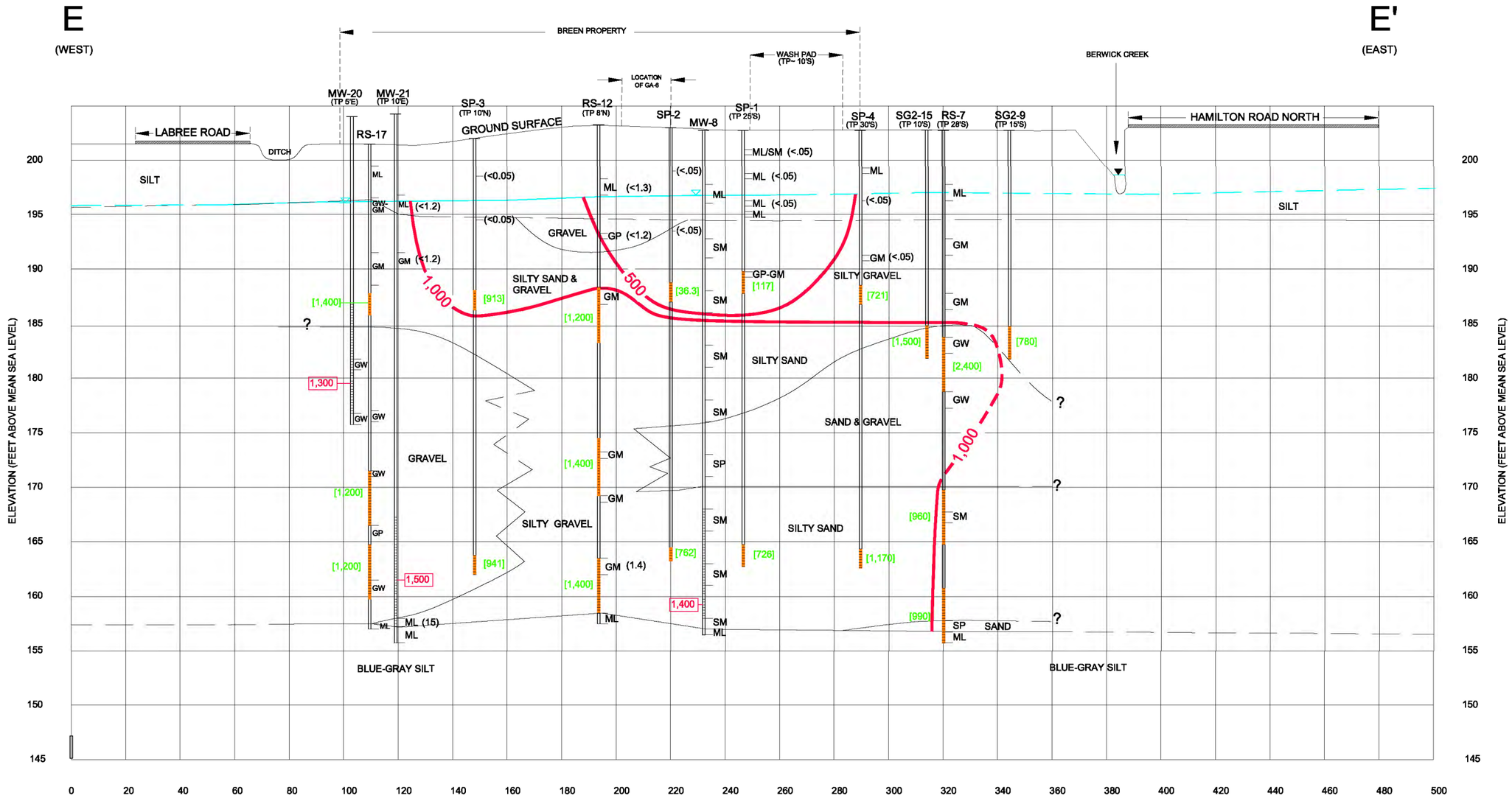
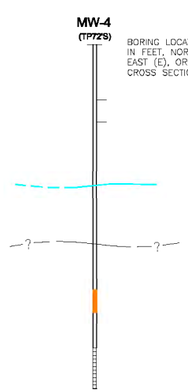
Issaquah, WA 98027

FIGURE 2-6



LEGEND



BORING LOCATION TRANSPOSED (TP) IN FEET, NORTH (N), SOUTH (S), EAST (E), OR WEST (W) TO CROSS SECTION LINE.

SOIL SAMPLE INTERVAL

BLANK CASING

POTENTIOMETRIC SURFACE, DASHED WHERE INFERRED (NOVEMBER, 2002)

GEOLOGIC CONTACT, INFERRED WHERE QUERIED

TEMPORARY WELL SCREEN INTERVAL

WELL SCREEN INTERVAL

BOTTOM OF WELL/BOREHOLE

(1.4) = CONCENTRATION OF TETRACHLOROETHENE (PCE) IN SOIL IN MICROGRAMS PER KILOGRAM (ug/kg)

[2,400] = CONCENTRATION OF PCE IN GROUNDWATER RECONNAISSANCE SAMPLE IN MICROGRAMS PER LITER (ug/l)

1,500 = CONCENTRATION OF PCE IN GROUNDWATER SAMPLE (ug/l)

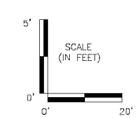
▼ = DENOTES SURFACEWATER ELEVATION (NOVEMBER 2002)

5 = ISOCONCENTRATION CONTOUR LINE

GA-6 = GEOPHYSICAL ANOMALY
MW-18 = MONITORING WELL LOCATION
RS-12 = RECONNAISSANCE SOIL BORING
SP-4 = STRATA PROBE SOIL BORING

GM = SILTY GRAVEL, SILTY GRAVEL WITH SAND
GW/GP = GRAVEL, GRAVEL WITH SAND
GW-GM, GP-GM = GRAVEL WITH SILT, GRAVEL WITH SILT AND SAND
GW = GRAVEL (WELL GRADED)
GP = GRAVEL (POORLY GRADED)
SP/SW = SAND, SAND WITH GRAVEL
SM = SILTY SAND, SILTY SAND WITH GRAVEL
SP-SM, SW-SM = SAND WITH SILT, SAND WITH SILT AND GRAVEL
ML = SILT, SANDY SILT, GRAVELLEY SILT

NOTE: LOCATION OF LINE OF CROSS SECTION SHOWN ON FIGURE 4



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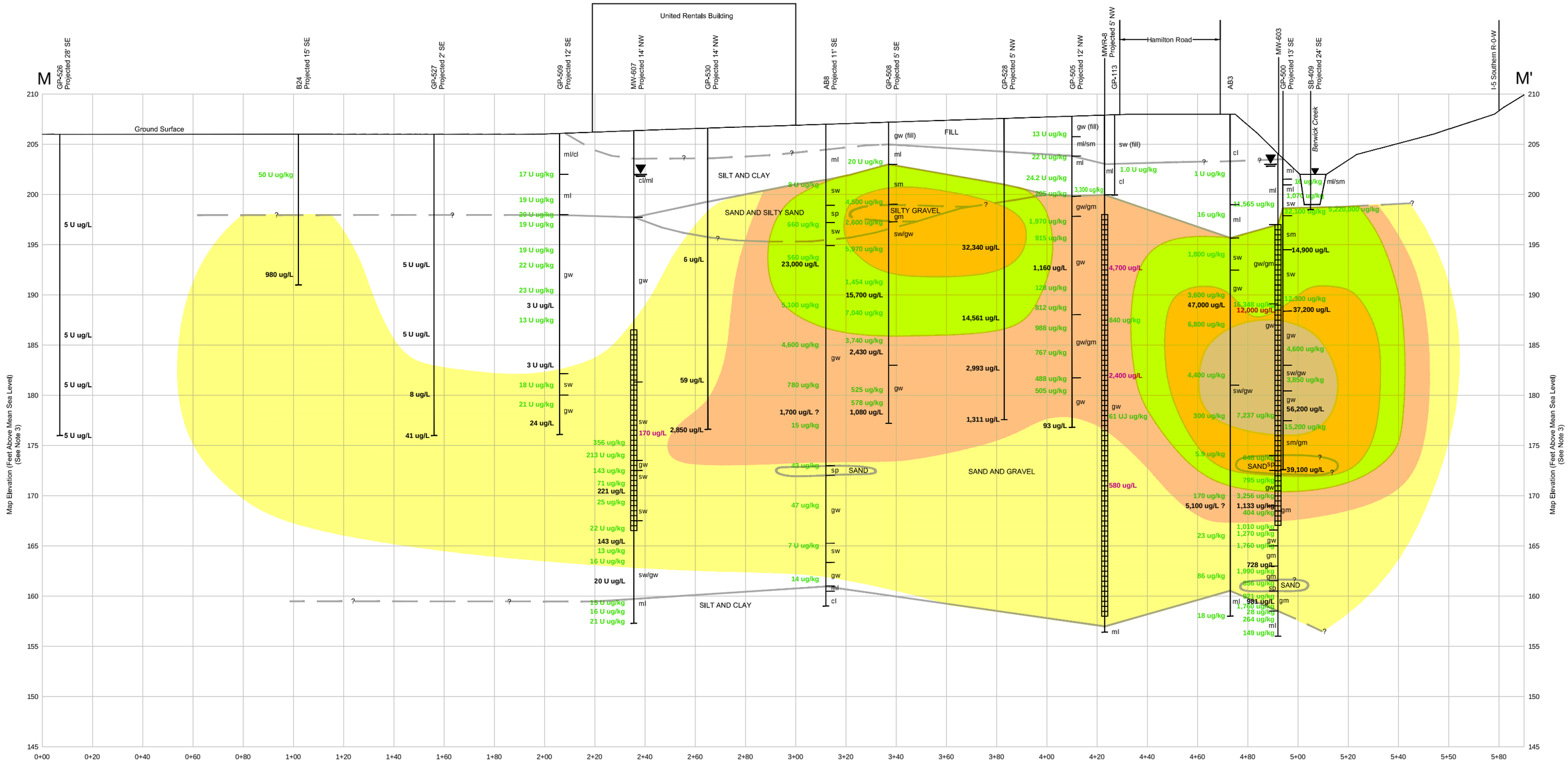
Issaquah, WA 98027

FIGURE 2-7

CROSS SECTION E–E'
REMEDIAL INVESTIGATION/ FEASIBILITY STUDY WORK PLAN
HAMILTON/LABREE ROADS GROUNDWATER CONTAMINATION SUPERFUND SITE
CHEHALIS, WASHINGTON

FARALLON PN: 734-001

Drawn By: DAVID WEST	Checked By: CS, RC, JP	Date: 7/1/03	Disk Reference: 734002



LEGEND

PCE Concentration in Groundwater

- >100,000 ug/L
- 50,000 - 100,00 ug/L
- 25,000 - 50,000 ug/L
- 10,000 - 25,000 ug/L
- 1,000 - 10,000 ug/L
- 5 - 1,000 ug/L

MW-600 Projected 17' SE — Sample Location With Distance and Direction of Projection Onto Section.

Potentiometric Groundwater Surface Elevation Measured 12/1/03. Corrected to Map Elevations From Ground Survey Elevations (See Note 3).

988 ug/kg — Analytical Result of Soil Sample Collected at Depth of Numerical Value.

14,561 ug/L — Analytical Result of Discrete Groundwater Sample From Temporary Sample Device.

4,700 ug/L — Analytical Result of Groundwater Sample From Screened Well Collected With Sampling Device at Depth of Numerical Value.

J	Concentration Value Reported as "Estimated"
U	Not Detected Above Concentration Value Shown
ug/L	Micrograms Per Liter
ug/kg	Micrograms Per Kilogram
gm	Silty Gravel
gw	Well-Graded Gravel
sw	Well-Graded Sand
sp	Poorly Graded Sand
ml	Silt, Low Plasticity
cl	Clay, Low Plasticity

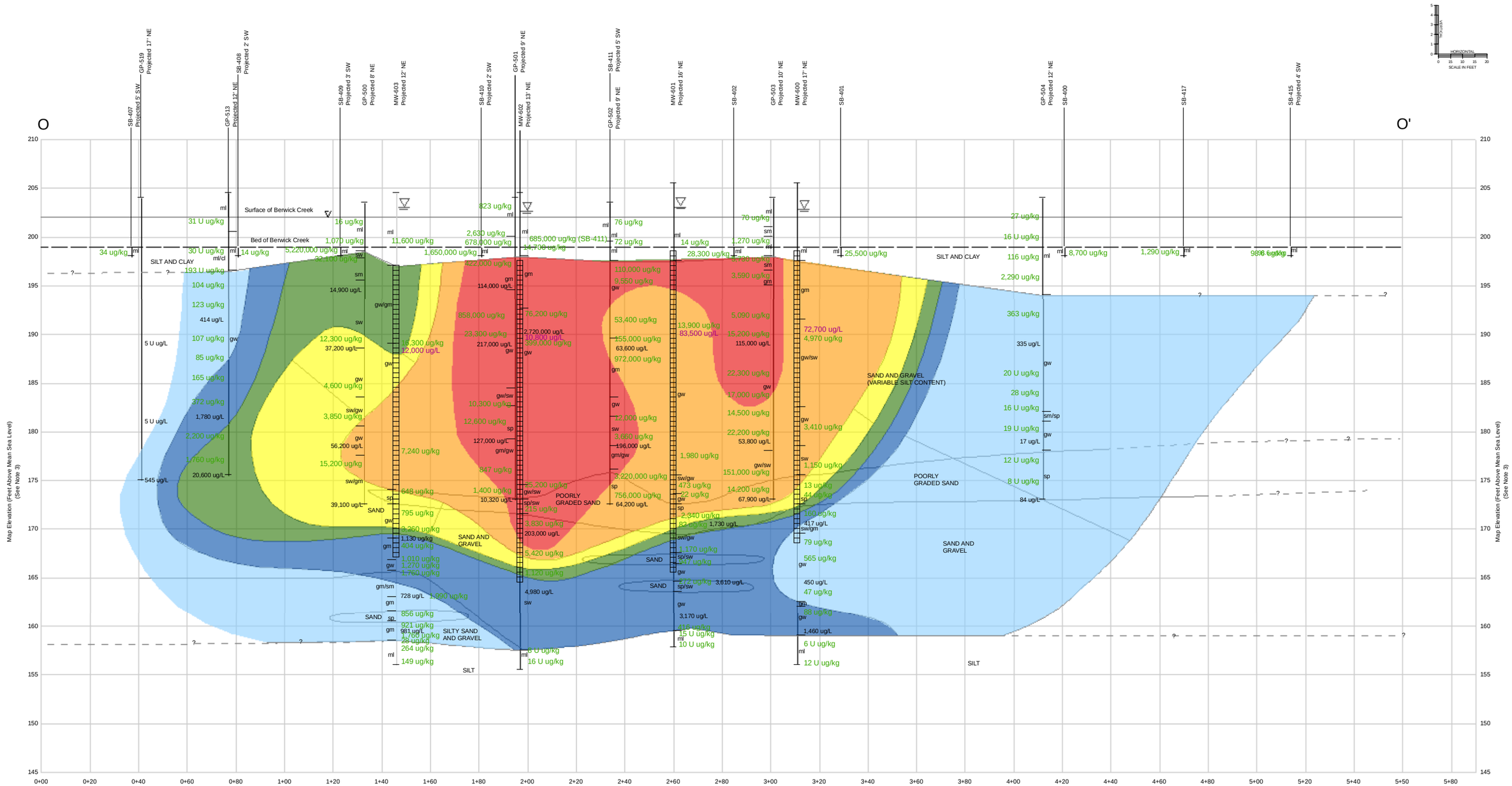
NOTES:
1. All analytical results shown are validated data rounded to the nearest whole number.
2. Soil type designations are field determined.
3. Elevations are based on interpolation from Lewis County PUD topographic data, not site-specific ground surveys.
4. No records are available that document the depth of the discrete water samples collected in AB3 and AB8. The depths of these samples have been interpreted based on the analytical results at adjacent sampling locations.

VERTICAL 0–5; HORIZONTAL 0 5 10 15 20; SCALE IN FEET

PLATE 2
Cross-Section M-M'

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA REPORT



LEGEND

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

MW-600 Projected 17' SE — Sample Location with Distance and Direction of Projection onto Section

Potentiometric Groundwater Surface Elevation Measured 12/1/03 Corrected to Map Elevations from Ground Survey Elevations (See Note 3).

988 ug/kg — Analytical Result of Soil Sample Collected at Depth of Numerical Value

14,561 ug/L — Analytical Result of Discrete Groundwater Sample from Temporary Sample Device

4,700 ug/L — Analytical Result of Groundwater Sample from Screened Well Collected with Sampling Device at Depth of Numerical Value

J	Concentration Value Reported as "Estimated
U	Not Detected Above Concentration Value Shown
ug/L	Micrograms per Liter
ug/kg	Micrograms per Kilogram
gm	Silty Gravel
gw	Well-Graded Gravel
sw	Well-Graded Sand
sp	Poorly Graded Sand
ml	Silt, Low Plasticity
cl	Clay, Low Plasticity

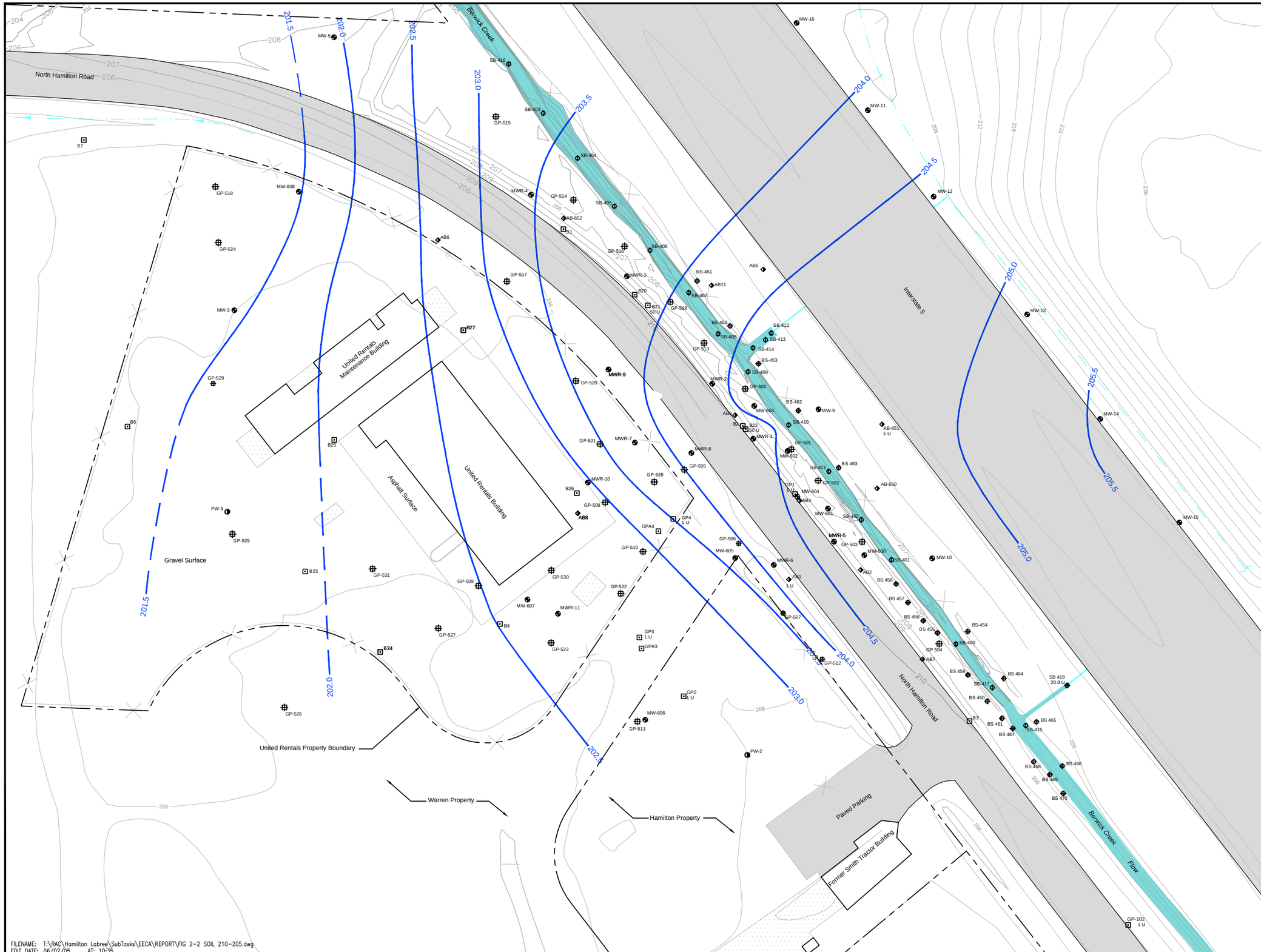
Notes:
1. All analytical results shown are validated data rounded to the nearest whole number.
2. Soil type designations are interpretations based on field characterization of discrete soil samples.
3. Elevations are based on interpolation from Lewis County PUD topographic data, not site-specific ground surveys.
4. The groundwater sample from the installed well MW-602 exhibits a lower PCE concentration than nearby discrete groundwater samples. This lower value was not used for contouring on this cross-section.

Plate 4
Cross-Section O-O'

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\Plate4_Cross-Section.mxd



Legend

- Concrete Area
- Geoprobe Boring
- Borehole
- Monitoring Well
- Private Well
- Stream-Bed Soil Sampling Location
- Stream-Bank Soil Sampling Location
- Groundwater Elevation Contours Based on Data Collected November 2003.

PCE Concentration in Soil

- >100,000 ug/kg
- 50,000 - 100,00 ug/kg
- 25,000 - 50,000 ug/kg
- 10,000 - 25,000 ug/kg
- 1,000 - 10,000 ug/kg
- 5 - 1,000 ug/kg

Notes:

1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis County topographic data, not a site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap Survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. All soil samples collected in this elevation interval were reported as not detected for PCE. Isoconcentration contours are therefore not presented.

Sources:

1. Base map including site features and well locations. provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.

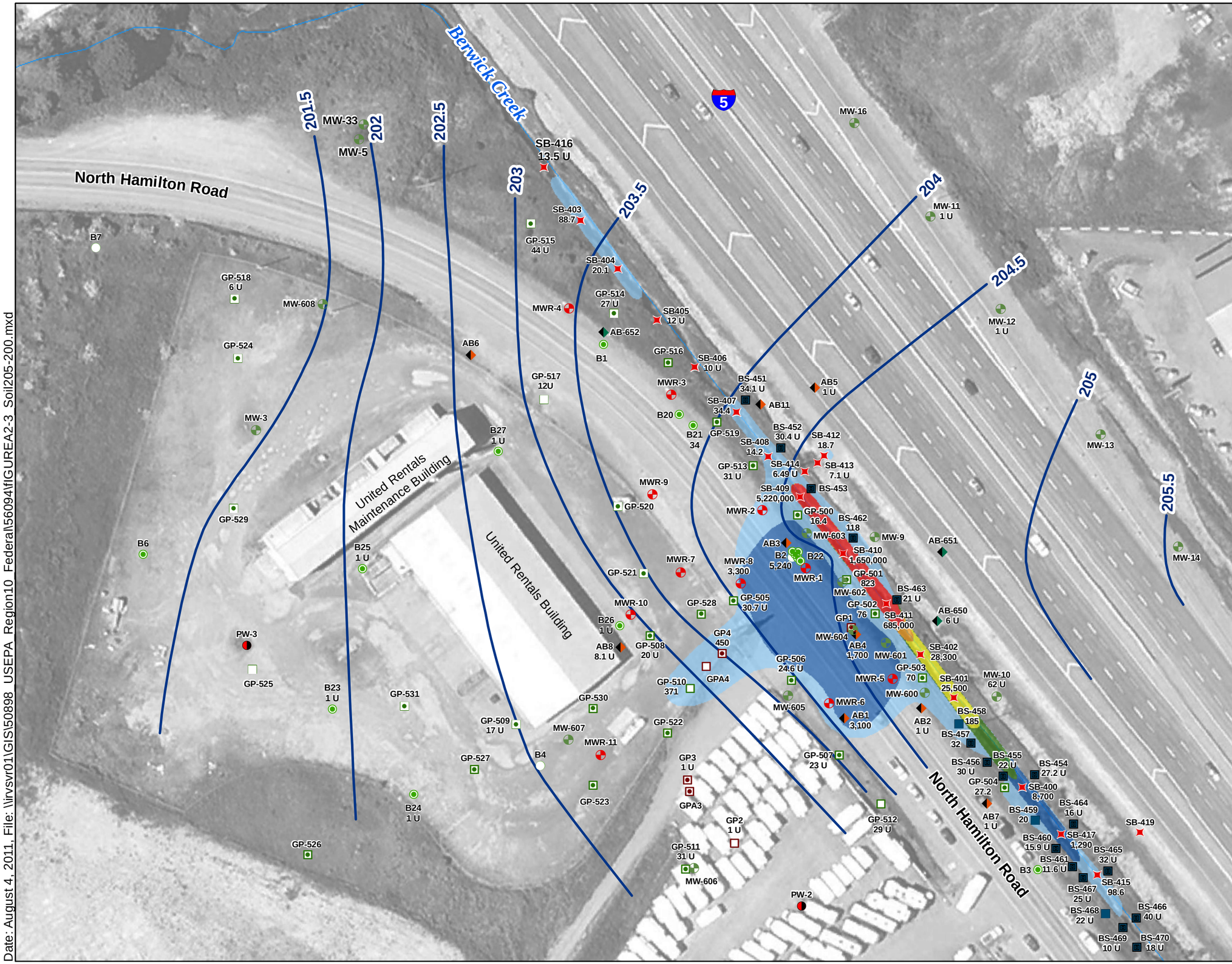
SCALE IN FEET

Figure 2-2
Isoconcentration Contour Map
PCE in Soil 210 to 205 Feet
Elevation Range (None Detected)

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA REPORT

FILENAME: T:\RAC\Hamilton Labree\SubTasks\EECA\REPORT\FIG 2-2 SOIL 210-205.dwg
EDIT DATE: 06/02/05 AT: 10:35



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located in WA SP NAD83 coordinates. The Buttler Basemap survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Data from locations B20 and B21 not used because location of these points is uncertain.

N

75 0 75
Feet

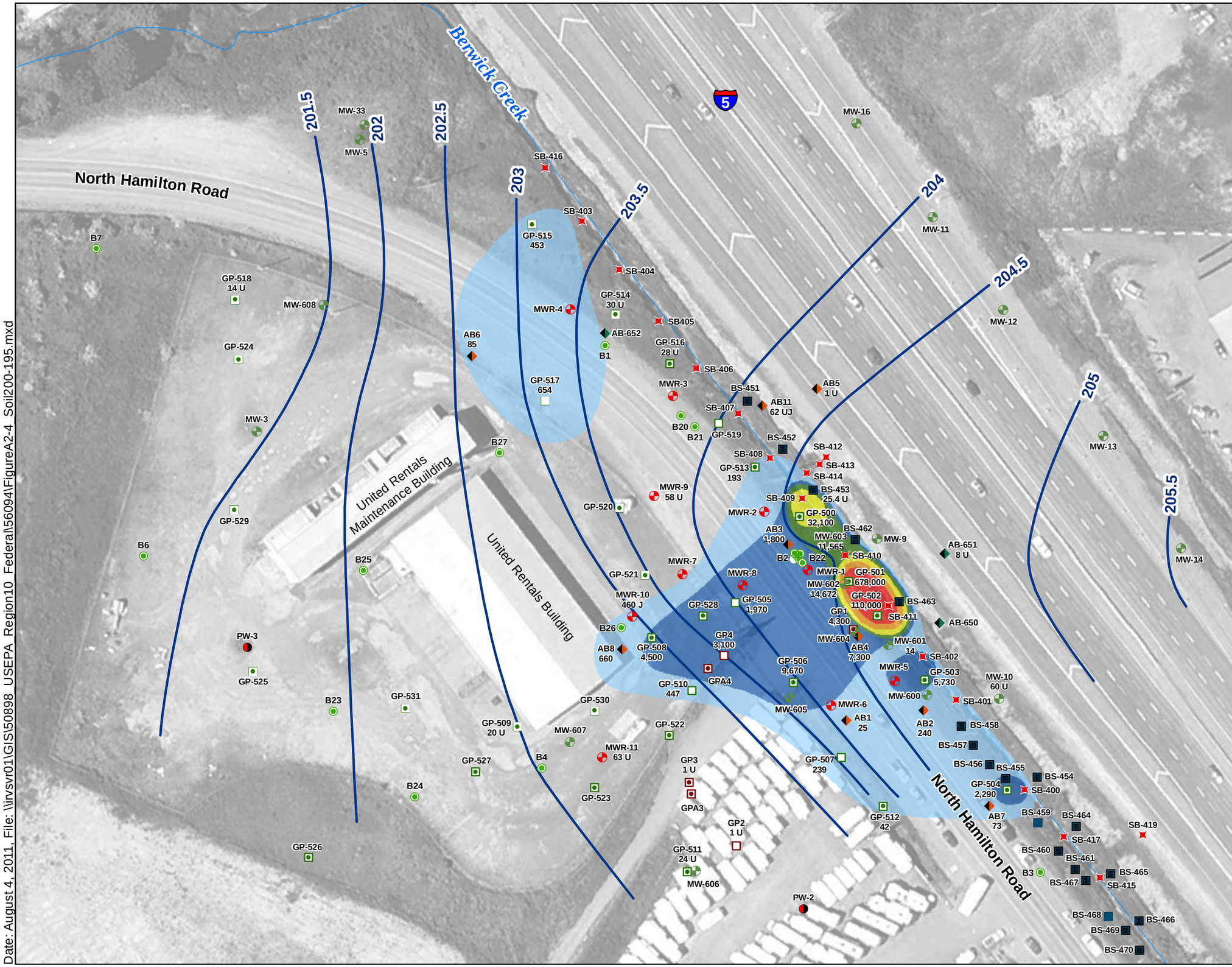
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, Public Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-3
Isoconcentration Contour Map
PCE in Soil 205 to 200 Feet Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\fIGUREA2-3_Soil205-200.mxd



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Contour elevations are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap Survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Soil samples from MW-602 and GP-501 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

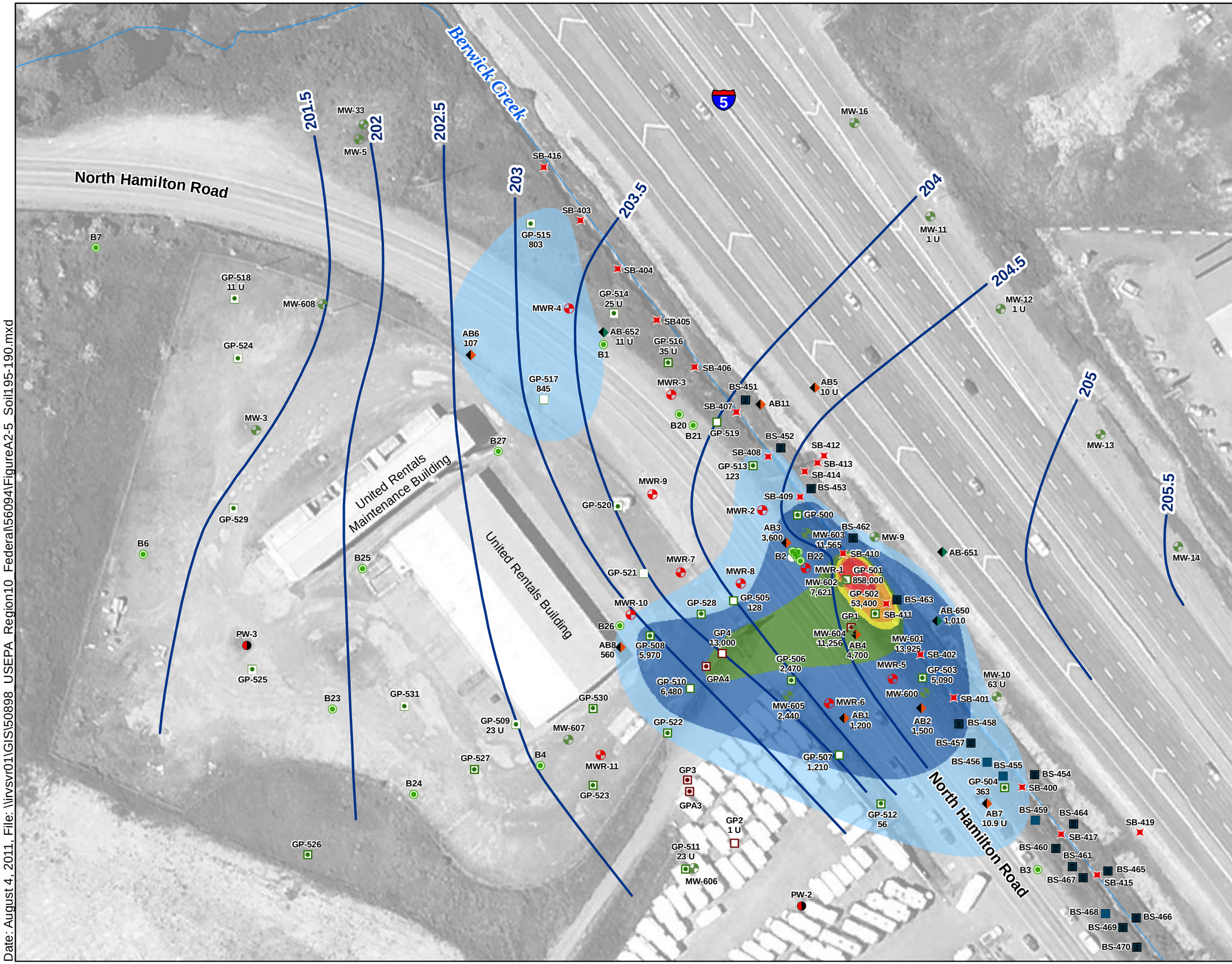
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-4
Isoconcentration Contour Map
PCE in Soil 200 to 195 Feet
Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-4_Soil200-195.mxd



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap Survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Soil samples from MW-602 and GP-506 and from Mw-604 and AB4 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

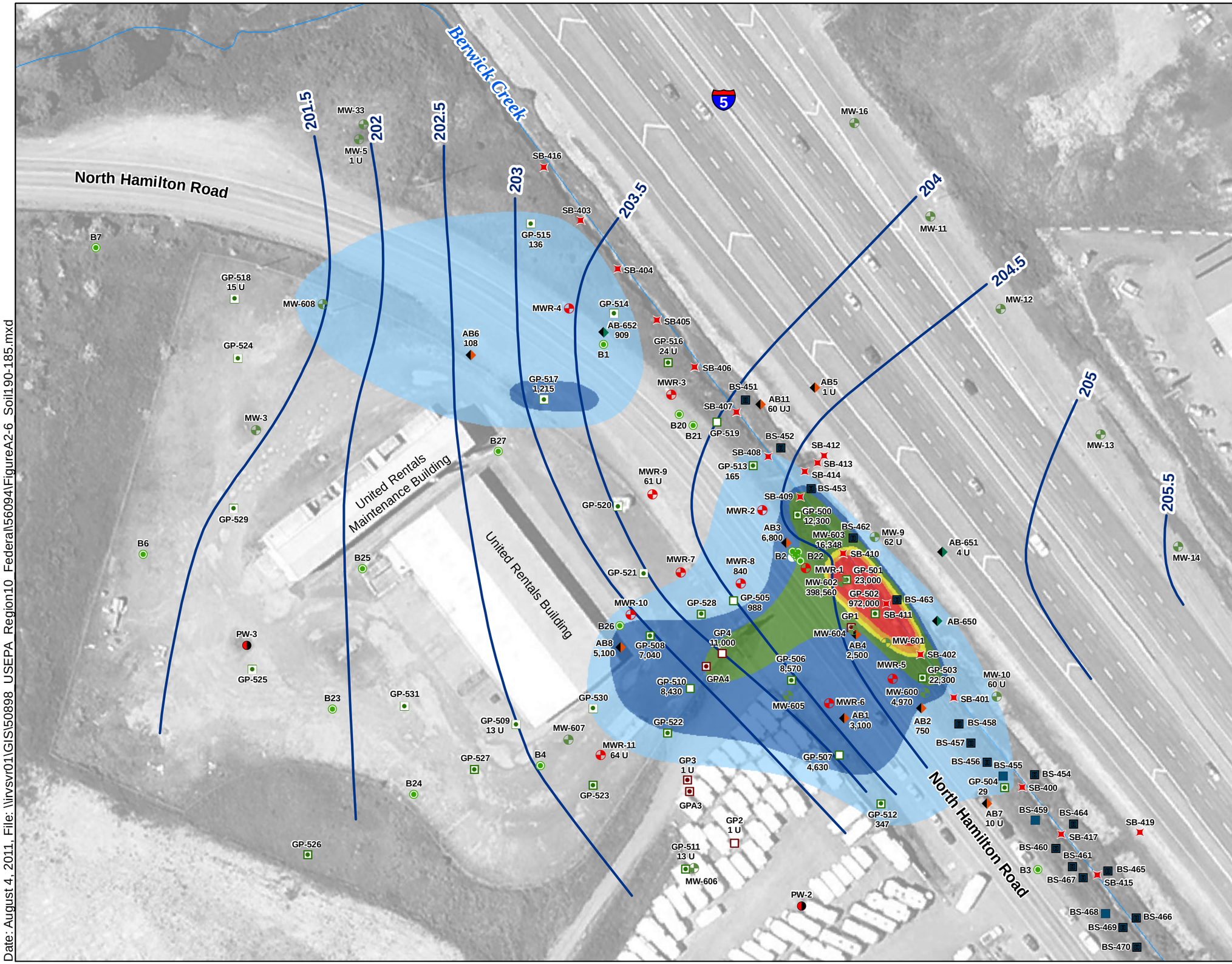
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-5
Isoconcentration Contour Map
PCE in Soil 195 to 190 Feet
Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-5_Soil195-190.mxd



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Samples from Mw-602 and GP-501 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

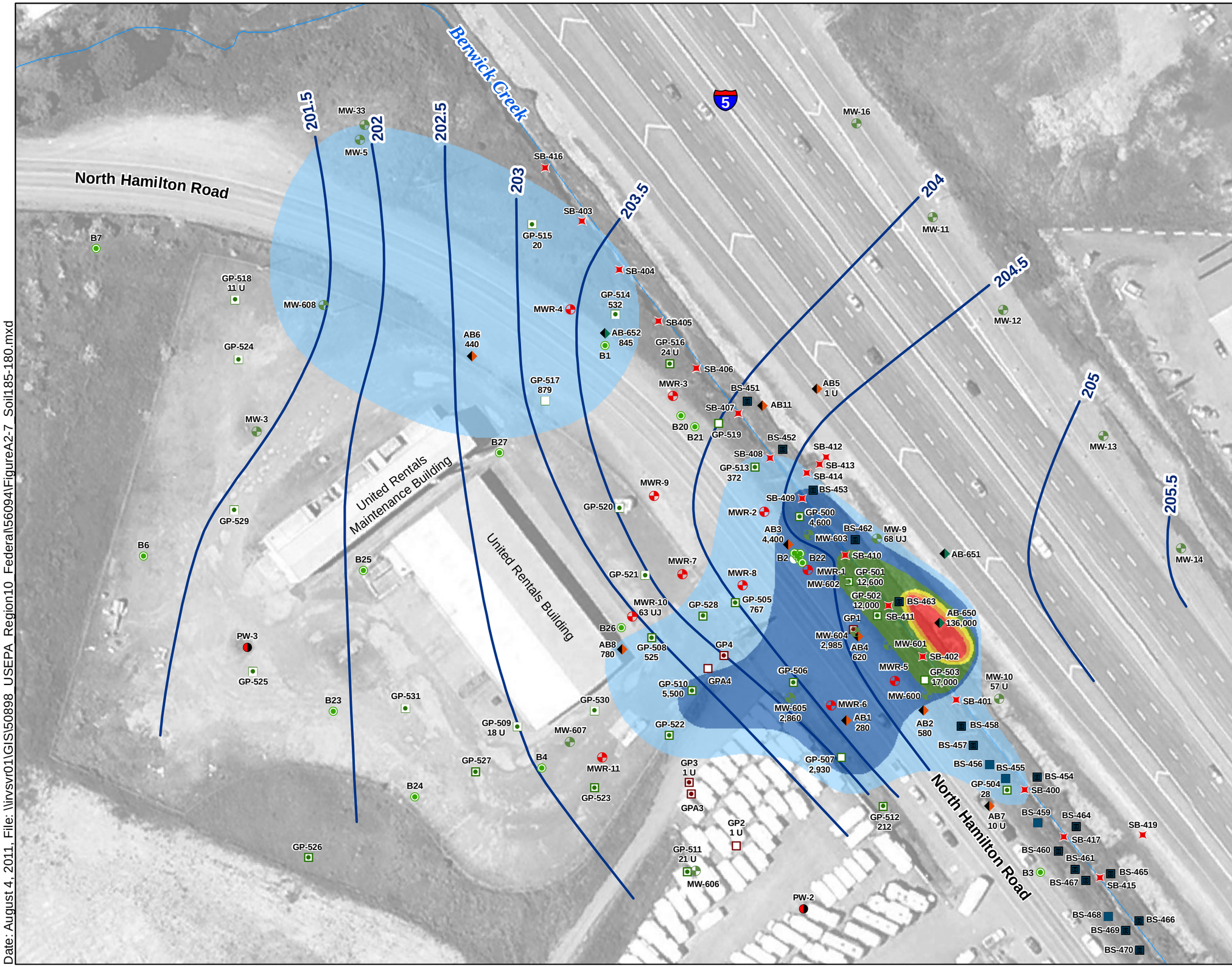
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-6
Isoconcentration Contour Map
PCE in Soil 190 to 185 Feet Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-6_Soil190-185.mxd



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap Survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Soils samples from MW-604, GP1 and AB4 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

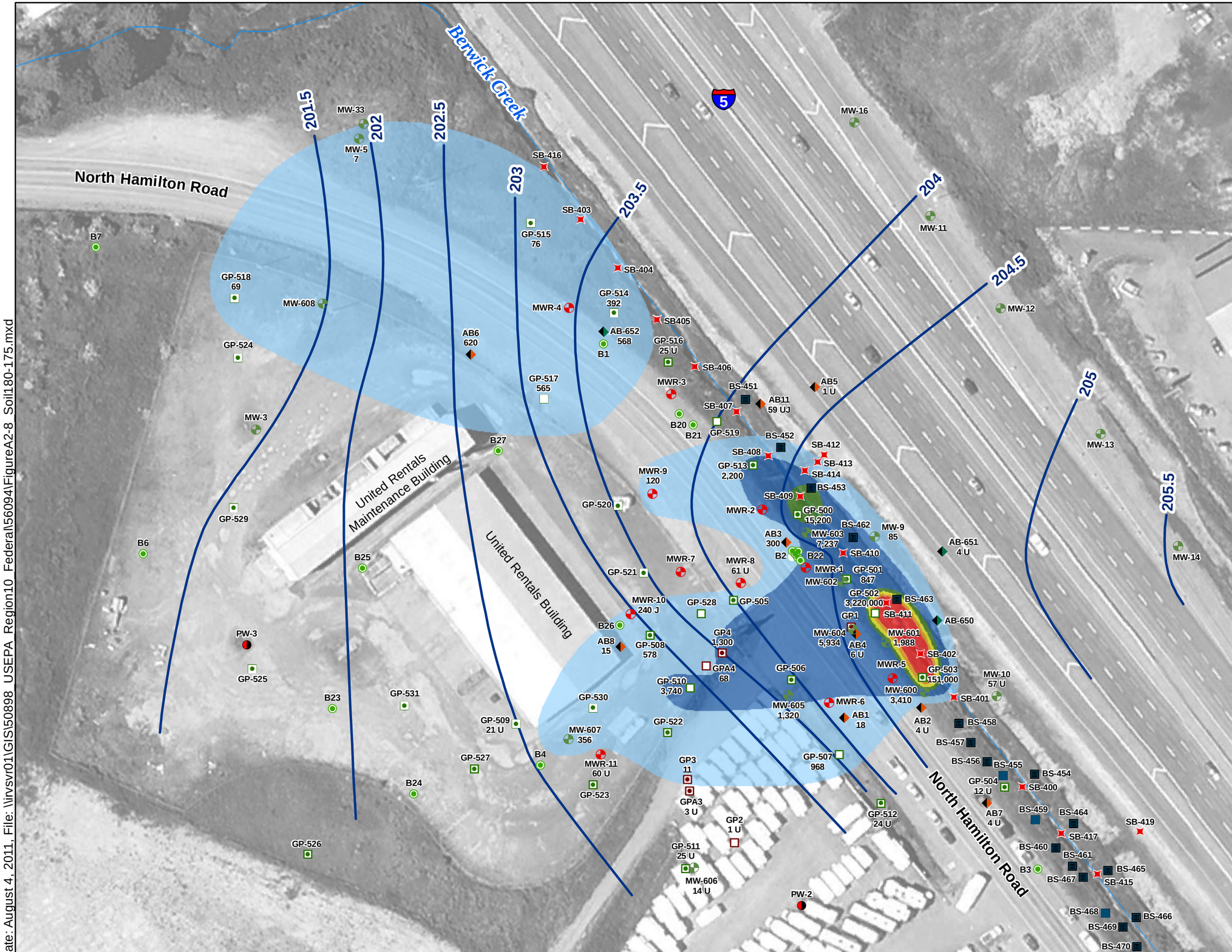
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-7
Isoconcentration Contour Map
PCE in Soil 185 to 180 Feet
Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-7_Soil185-180.mxd



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap Survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Soils samples from MW-604, GP1 and AB4 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

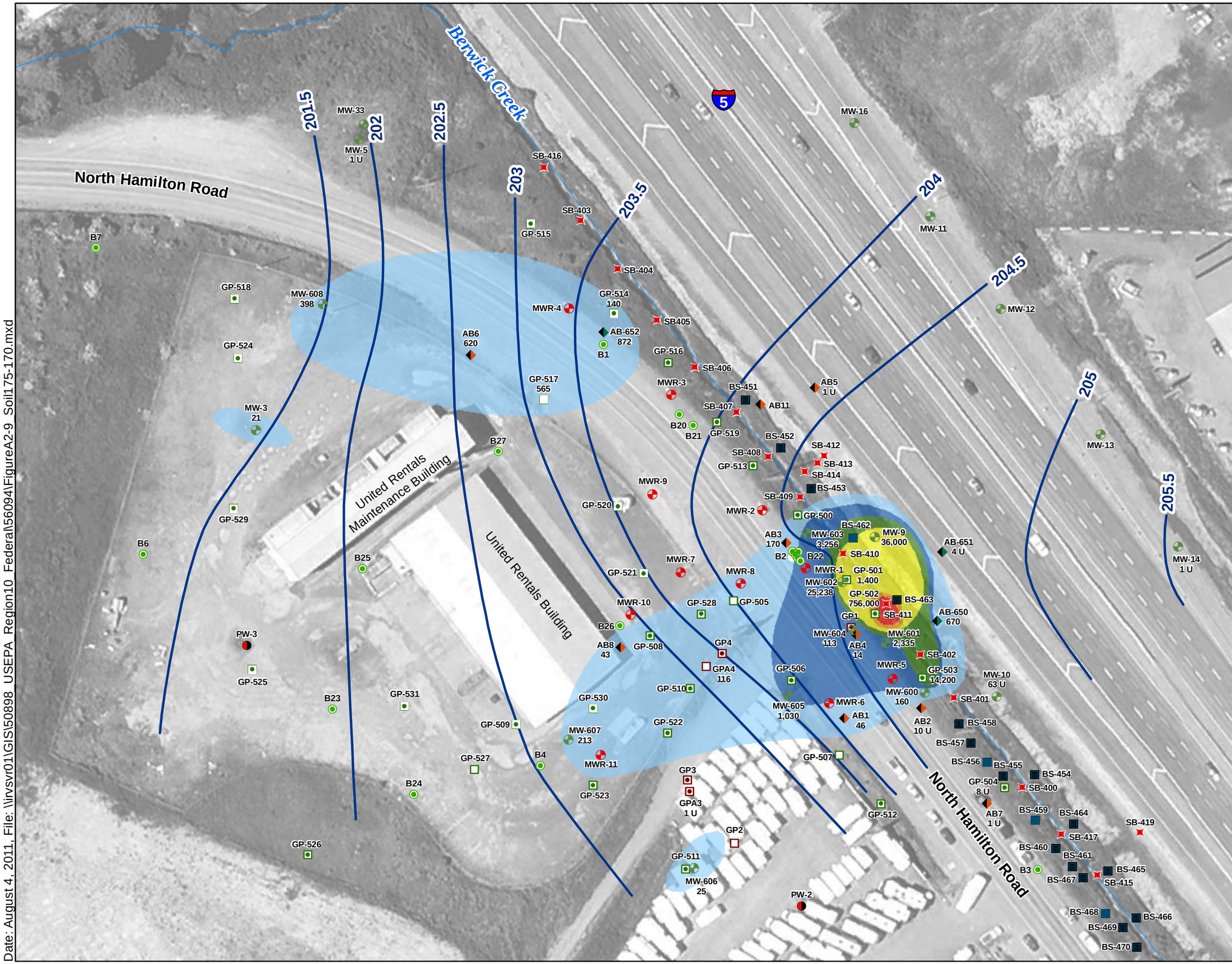
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-8
Isoconcentration Contour Map
PCE in Soil 180 to 175 Feet
Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-8_Soil180-175.mxd



Legend

- 203.5 Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg
- > 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap Survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Soils samples from MW-602 and GP-501 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

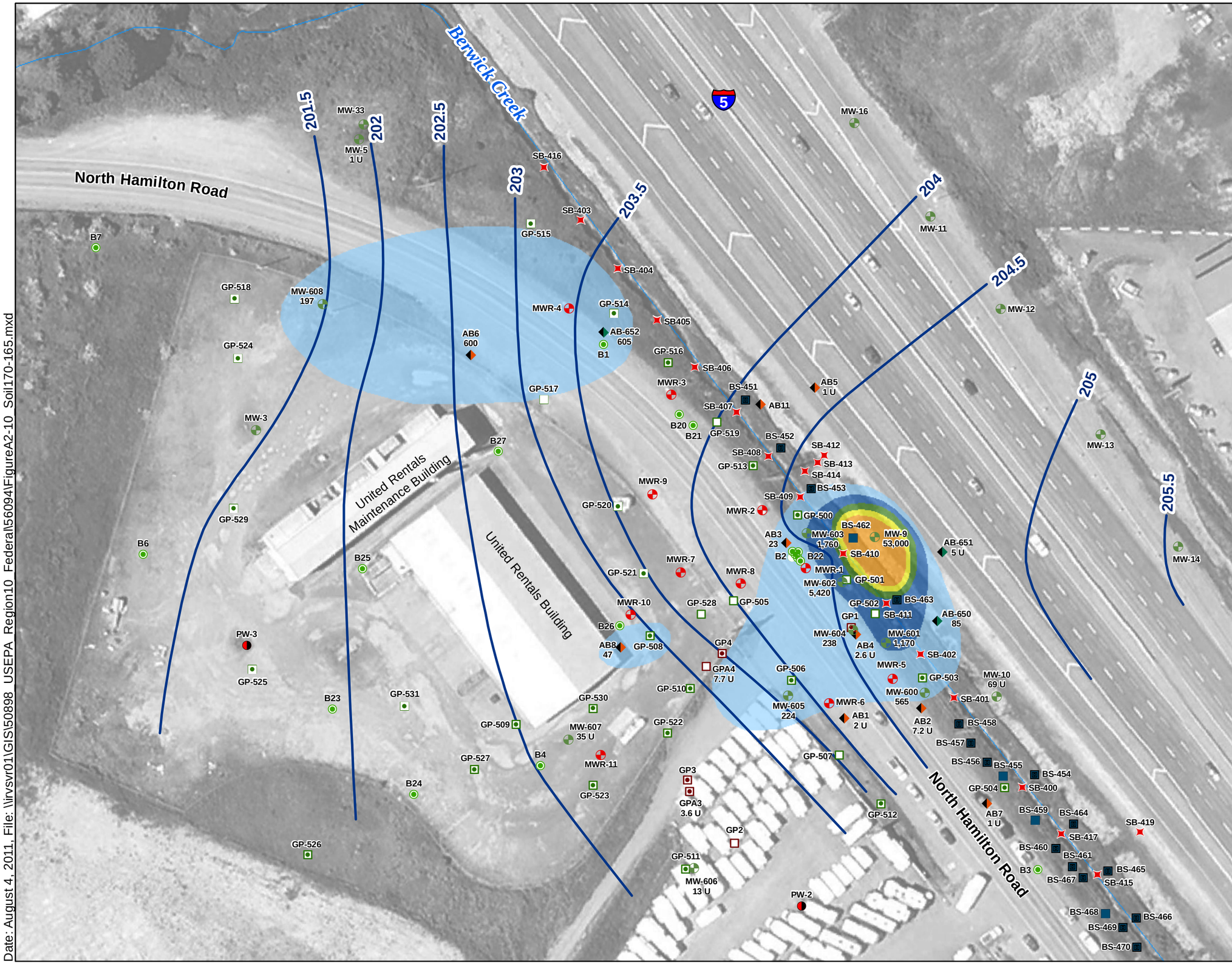
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-9
Isoconcentration Contour Map
PCE in Soil 175 to 170 Feet Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-9_Soil175-170.mxd



Legend

- 203.5 — Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg
- 10,000 - 25,000 ug/kg
- 25,000 - 50,000 ug/kg
- 50,000 - 100,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Concentration contours are based on the individual data points shown. Elevations are based on Lewis Countytopographic data, not site-specific ground survey.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.
4. Soils samples from MW-604 and AB4 are nearly co-located. The higher value was used for contouring.

N

75 0 75
Feet

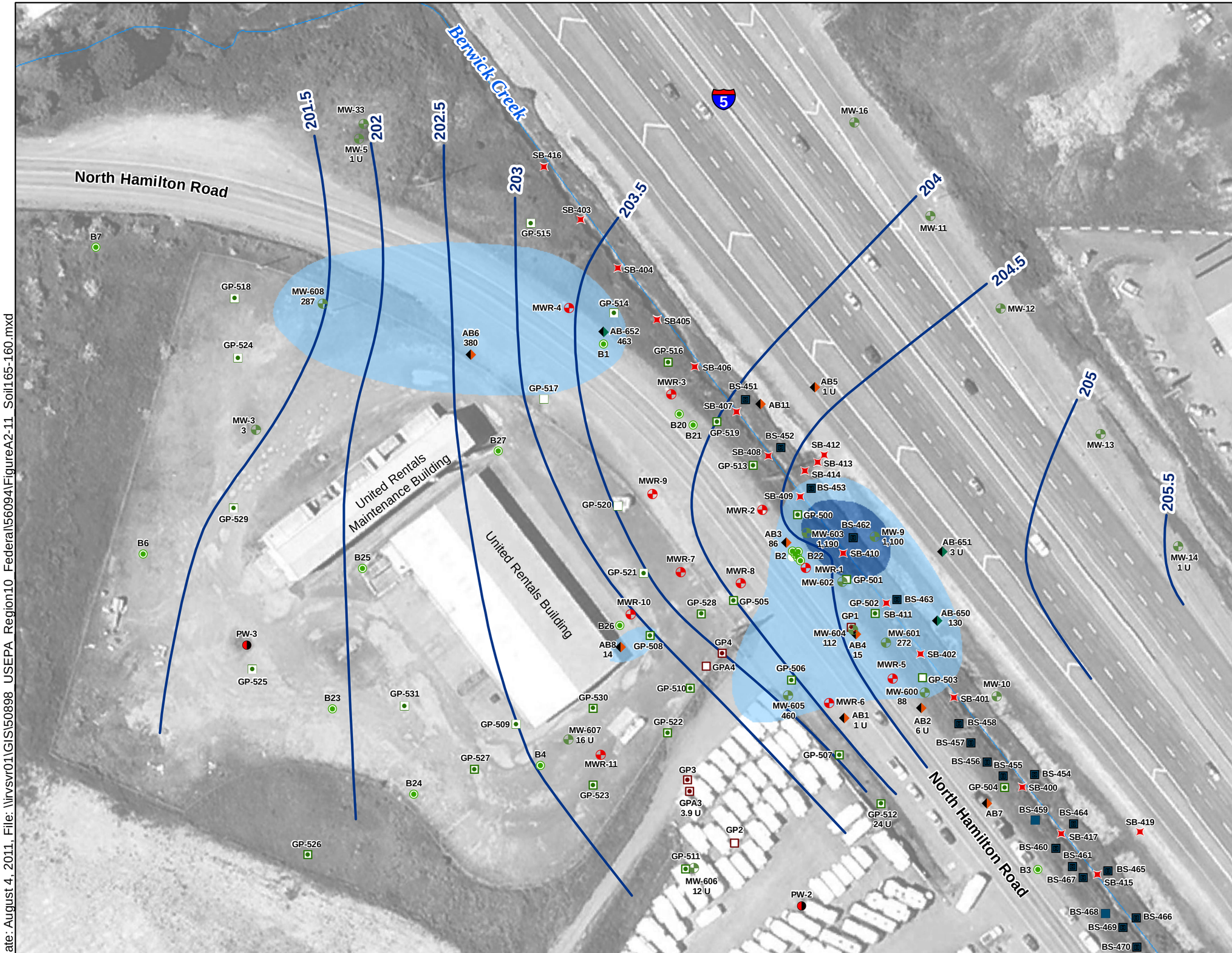
Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-10
Isoconcentration Contour Map
PCE in Soil 170 to 165 Feet Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\irvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-10_Soil170-165.mxd



Legend

- 203.5 — Groundwater Elevation Contour Based on Data Collected November 2003
- Auger Boring
- Auger Boring
- Geoprobe Boring
- Geoprobe Boring
- Geoprobe Boring
- Monitoring Well
- Monitoring Well/Recovery Well
- Private Well
- Stream Bed
- Stream Bank

PCE Concentration in Soil

- 5 - 1,000 ug/kg
- 1,000 - 10,000 ug/kg

Notes:
1. This plate depicts PCE concentrations in soil in the elevation range listed in the title. Contour elevations are based on the individual data points shown.
2. All EE/CA investigation sampling locations are located by WA SP NAD83 coordinates. The Buttler Basemap survey data has been adjusted to fit.
3. Groundwater contour elevation values are based on site-specific ground surveys of monitoring wells.

N

75 0 75
Feet

Sources:
1. Base map including site features and well locations provided by Ecology and Environment, Inc.
2. Topography data from Lewis County Public Works, GIS Services Division.
3. Locations of historic geoprobe borings and boreholes visually estimated from published figures by Ecology and Environment, Inc.
4. Image from ©2011 Google™

Figure 2-11
Isoconcentration Contour Map
PCE in Soil 165 to 160 Feet Elevation Range

EPA REGION 10

100-NS-EE-10AA
Hamilton Road Impact Area
EE/CA Report

Date: August 4, 2011, File: \\rvsvr01\GIS\50898_USEPA_Region10_Federal\56094\FigureA2-11_Soil165-160.mxd

Appendix E
Boring and Well Logs

Appendix E: Boring/Well Log Index
Hamilton/Labree Roads Superfund Site

01_GeoEngineers Logs 1999

a. Stratoprobe Borings SP-1 through SP-8 (shown as Boring 01 through Boring 08 on logs and later renamed to SP-1 through SP-8)
b. Test Pit 01 through Test Pit 07
c. Figure of Stratoprobe boring locations

02_Ecology Logs 1999

a. MWR-1 through MWR-7

03_SAIC Logs 1999

a. MW-1 through MW-3, MW-3a, MW-4 through MW-8
b. Figure of well locations

04_E&E Boring Logs 2000

a. GP-1 through GP-3, GP-3A, GP-4
b. AB-1 through AB-11

05_E&E Boring Logs 2000_2001

a. MW-9 and MW-10
b. MWR-8 through MWR-11
c. AB-12
d. MW-11 through MW-16

06_E&E Phase IV Logs 2001

a. GP-102 through GP-191

07_Farallon Logs 2002

a. RS-1 Through RS-8, RS-8A, RS-9 through RS-15, RS-15A, RS-16 through RS-17, RS-17A, RS-18 through RS-19, RS-19A, RS-20 through RS-23, RS-23A, RS-24
b. MW-17 through MW-25

08_URS Boring Logs 2003

a. GP-500 through GP-518
b. AB-650 through AB-652

09_URS Well Logs 2003

a. MW-600 through MW-608

10_Farallon Logs 2003_2004

a. MW-26, MW-28 through MW-32
b. MW-BP-04
c. RS-30, RS-31, RS-33, RS-41, RS-43
d. MW-33 and MW-34
e. RS-42, RS-46 through RS-49

11_Private Wells

a. PW-1, PW-2, PW-3, PW-23, PW-24, and PW-21

12_Unsampled Private Wells

a. Various private well logs for Hamilton Road, Labree Road, and Rice Road

01_GeoEngineers Logs 1999

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/12/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	2" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

Sample No.	Sample	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen
		SP-SM	Dark brown fine to medium sand with silt and gravel (moist)		
1	■			9.8	SS
2	■	CL	Gray gravelly clay with silt and occasional sand (moist)	0	SS
3	■	CL	Gray gravelly clay with silt and sand lenses (wet)	0	NS
4	■			0	NS
		GP-GM	Reddish brown gravel with sand and silt (wet)		
5	■			0	NS
6	■			0	NS

Boring completed at a depth of 40.0 feet on 08/12/99.
Ground water encountered at an approximate depth of 6.4 feet during drilling.

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 7282101B.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF BORING 01 SP-1

FIGURE B-3

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/12/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	2" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

Depth in Feet	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0						GP	Gray fine to medium gravel fill			
						CONCRETE				
						ML	Dark brown silt with occasional sand and gravel (moist)			
		1		■				0	SS	
		2		■				0	MS	
5		3		■		CL	Gray gravelly clay with silt and occasional sand (wet) ▽	0	SS	
						GP-GM	Reddish brown mottled gravel with sand and silt (wet)			
10		4		■				0	NS	
15		5		■				0	NS	
20		6		■				0	NS	
25										
30										
35										
40							Boring completed at a depth of 40.0 feet on 08/12/99. Ground water encountered at an approximate depth of 6.0 feet during drilling.			
45										

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 72821018.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF BORING 02 SP-2

FIGURE B-4

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/12/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	2" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	36	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP-SM	Brown fine to medium sand with silt and gravel (moist)				0
		1		■				0	SS		
5						CL	Gray mottled gravelly clay with silt and sand (wet) ∇				5
		2		■				0	SS		
		3		■				0	SS		
10											10
						GP-GM	Brown fine to coarse gravel with silt and sand (wet)				
		4		■				0	NS		
15											15
20		5		■				0	NS		20
25											25
30											30
35											35
40							Boring completed at a depth of 36.0 feet on 08/12/99. Ground water encountered at an approximate depth of 6.0 feet during drilling.				40

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 72821019.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF BORING 03 SP-3

FIGURE B-5

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/18/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	1.5" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP-SM	Brown fine to medium sand with silt and gravel (moist)				0
		1		■		CL	Grayish brown mottled silty clay with gravel (moist)	0	SS		
5		2		■				0	SS		5
		3		■				0	NS		
10		4		■			▽	0	NS		10
		5		■		GC	Bluish green clayey gravel with silt (wet)	0	NS		
15											15
20											20
25											25
30											30
35											35
40							Boring completed at a depth of 40.0 feet on 08/18/99. Ground water encountered at an approximate depth of 10.5 feet during drilling.				40
45											45

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 7282101B.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

GeoEngineers

LOG OF BORING 04 SP-4

FIGURE B-6

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/18/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	1.5" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

DEPTH IN FEET	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes	DEPTH IN FEET
0						SP-SM	Brown fine to medium sand with silt and gravel (moist)				0
						CL	Brown mottled silty clay with occasional sand and gravel (moist)				
		1		■				0	SS		
5		2		■				0	SS		5
		3		■			∇	0	SS		
10		4		■		GC	Bluish green mottled clayey gravel with sand (wet)	0	NS		10
15											15
20											20
25											25
30											30
35											35
40							Boring completed at a depth of 40.0 feet on 08/18/99. Ground water encountered at an approximate depth of 8.0 feet during drilling.				40
45											45

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 72821018.GPJ GEI_CORP.GDT 10/12/09 7282-001-01

Geo Engineers

LOG OF BORING 05 SP-5

FIGURE B-7

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/18/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	1.5" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

Sample No.	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen
	SP-SM	Brown fine to medium sand with silt and gravel (moist)		
1	CL	Grayish brown mottled silty clay with gravel (moist)	0.9	MS
2			0.9	MS
3			1.1	SS
4			1.1	SS
5			0.9	SS
6	CL	Bluish green mottled gravelly clay with silt (moist)	0.9	NS

Boring completed at a depth of 40.0 feet on 08/18/99.
Ground water encountered at an approximate depth of 14.6 feet during drilling.

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 72821018.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF BORING 06 SP-6

FIGURE B-8

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/18/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	1.5" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

Sample No.	Sample	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen
		SP-SM	Brown fine to medium sand with silt and gravel (moist)		
		CL	Brown mottled silty clay with occasional gravel (moist)		
1	■			0	MS
		CL	Grayish green mottled gravelly clay with silt (moist)		
2	■			0	MS
3	■			0	MS
4	■			0	SS
		GC	Reddish brown clayey gravel with silt and sand		
5	■			0	SS

Boring completed at a depth of 40.0 feet on 08/18/99.
Ground water encountered at an approximate depth of 8.5 feet during drilling.

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 7282101B.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF BORING 07 SP-7

FIGURE B-9

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis

Date Drilled	08/18/99	Logged By	JJO	Contractor	TEG
Drill Method	StrataProbe	Equipment	StrataProbe	Drill Bit	
Sample Method	1.5" & 3" Split Spoon Sampler	Hammer Data	Direct Push	X-coordinate: Y-coordinate:	Not Determined Not Determined
Total Depth (ft)	40	Elevation (ft)	Not Measured	Datum: System:	Not Determined Not Determined

Depth in Feet	% Recovery	Sample No.	Blow Count	Sample	Graphic Log	USCS Group Symbol	Material Description	Headspace Vapor (ppm)	Sheen	Other Tests And Notes
0						SP-SM	Brown fine to medium sand with silt and gravel (moist)			
						CL	Brownish gray mottled silty clay with occasional sand and gravel (moist)			
5		1		■				0	SS	
		2		■				0	SS	
		3		■				0	SS	
10		4		■		SM	Blue silty fine to medium sand with clay (wet)	0	NS	
						GP-GM	Brown fine to coarse gravel with silt and sand (moist)			
15										
20										
25										
30										
35										
40							Boring completed at a depth of 40.0 feet on 08/18/99. Ground water encountered at an approximate depth of 9.0 feet during drilling.			
45										

Note: See Figure B-2 for explanation of symbols

GEI ENVIRONMENTAL BORING LOG 7282101B.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF BORING 08 SP-8

FIGURE B-10

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis, Washington

LOG OF TEST PIT 01

Date Excavated: 8/19/99 Logged by: JJO

Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psf)	Other Tests And Notes	DEPTH IN FEET
0				GP	Gravel base, fill at surface					0
				SM	Dark brown silty fine to medium sand with gravel (medium dense, moist)					
	1	☒		CL	Brownish gray (mottled) silty clay (medium dense, moist)					
	2	☒								
5										5
	3	☒								
10					Test pit completed at a depth of 9.5 feet on 08/19/99. Slight ground water seepage observed at a depth of 9.5 feet. No caving observed. Disturbed soil samples obtained at depths of 2.0, 4.0 and 8.0 feet.					10

Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT 02

Date Excavated: 8/19/99 Logged by: JJO

Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psf)	Other Tests And Notes	DEPTH IN FEET
0				GP	Gravel base fill at surface					0
				SM	Dark brown silty fine to medium sand with gravel (medium dense, moist)					
				CL	Brownish gray mottled silty clay with occasional gravel (medium dense, moist)					
	1	☒								
5										5
	2	☒								
10					Test pit completed at a depth of 9.0 feet on 08/19/99. Slight ground water seepage observed at a depth of 9.0 feet. No caving observed. Disturbed soil samples obtained at depths of 4.0 and 7.0 feet.					10

Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

GEI TEST PIT LOGS 72820101.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF TEST PIT

FIGURE B-11

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis, Washington

LOG OF TEST PIT 03

Date Excavated: 8/19/99 Logged by: JJO

Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psf)	Other Tests And Notes	DEPTH IN FEET
0				GP	Gravel base fill at surface					0
				SM	Dark brown silty fine to medium sand with gravel (medium dense, moist)					
				CL	Brownish gray mottled silty clay (medium dense, moist)					
	1	☒								
5										5
	2	☒								
10					Test pit completed at a depth of 9.0 feet on 08/19/99. Slight ground water seepage observed at a depth of 9.0 feet. No caving observed. Disturbed soil samples obtained at depths of 4.0 and 8.0 feet.					10

Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT 04

Date Excavated: 8/19/99 Logged by: JJO

Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psf)	Other Tests And Notes	DEPTH IN FEET
0				GP	Gravel base fill					0
				SM	Dark brown silty fine to medium sand with gravel (medium dense, moist)					
					Test pit completed at a depth of 2.0 feet on 08/19/99. Heavy ground water seepage observed at a depth of 1.5 feet. No caving observed.					
5										5

Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

GEI TEST PIT LOGS 72820101.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

GeoEngineers

LOG OF TEST PIT

FIGURE B-12

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis, Washington

LOG OF TEST PIT 05

Date Excavated: 8/19/99 Logged by: JJO
Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psi)	Other Tests And Notes	DEPTH IN FEET
0				SM	Brown silty fine to medium sand					0
	1	☒		GM	Brown to dark brown silty gravel (medium dense, moist)					
				CL	Brownish gray mottled silty clay (medium dense, moist)					
	2	☒								
5										5
	3	☒								
10					Test pit completed at a depth of 9.0 feet on 08/19/99. No ground water seepage observed. No caving observed. Disturbed soil samples obtained at depths of 1.5, 4.0 and 8.0 feet.					10

Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

LOG OF TEST PIT 06

Date Excavated: 8/19/99 Logged by: JJO
Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psi)	Other Tests And Notes	DEPTH IN FEET
0				SM	Brown silty fine to medium sand					0
	1	☒		GM	Brown to dark brown silty gravel (medium dense, moist)					
				CL	Brownish gray mottled silty clay (medium dense, moist)					
5										5
	2	☒								
10					Test pit completed at a depth of 9.0 feet on 08/19/99. No ground water seepage observed. No caving observed. Disturbed soil samples obtained at depths of 1.5 and 8.0 feet.					10

Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

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LOG OF TEST PIT

FIGURE B-13

Project	Job Number	Location
Breen Construction	7282-001-01	Chehalis, Washington

LOG OF TEST PIT 07

Date Excavated: 8/19/99 Logged by: JJO

Equipment: Backhoe Surface Elevation (ft): Not Measured

DEPTH IN FEET	Sample No.	Sample	Graphic Log	USCS Group Symbol	Material Description	Moisture Content (%)	Pocket Penetrometer (Tons/ft²)	Field Vane Shear (psf)	Other Tests And Notes	DEPTH IN FEET
0				SM	Brown silty fine to medium sand					0
				GM	Brown to dark brown silty gravel (medium dense, moist)					
				CL	Grayish blue silty clay (medium dense, moist)					
	1	☒		CL	Brownish gray mottled silty clay (medium dense, moist)					
5										5
	2	☒								
10					Test pit completed at a depth of 8.0 feet on 08/19/99. No ground water seepage observed. No caving observed. Disturbed soil samples obtained at depths of 3.0 and 7.0 feet.					10

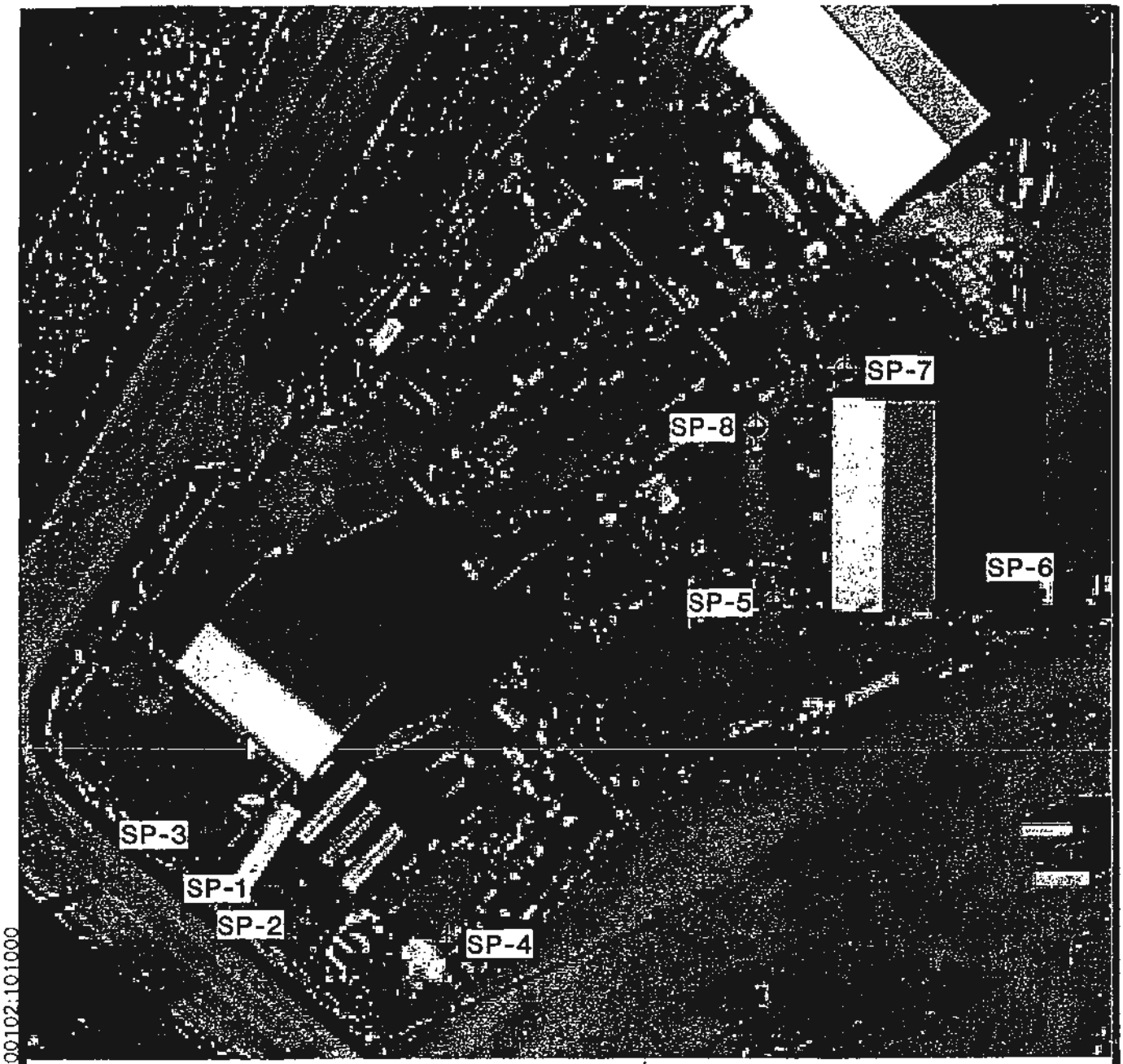
Notes: The depths of the test pit logs are based on an average of measurements across the test pit and should be considered accurate to 0.5 foot.

GEI TEST PIT LOGS 72820101.GPJ GEI_CORP.GDT 10/12/00 7282-001-01

Geo Engineers

LOG OF TEST PIT

FIGURE B-14



EXPLANATION:

SP-1 STRATAPROBE NUMBER AND APPROXIMATE LOCATION

NOTE:

The locations of all features shown are approximate.

N

0 80 160

APPROXIMATE SCALE IN FEET

Geo Engineers

SITE PLAN

FIGURE 3

7282001 04C.DWG 7282001 02.101000

SLM:RJW

02_Ecology Logs 1999

REFERENCE 26

HAMILTON LABREE PCE SITE
INSTALLATION OF 7 MONITORING WELLS - June 8-9, 1999

June 8, 1999

7:45 Lakeside Industries on Site
8:15 Cascade Drilling on Site
8:15 – 8:30 Discussion of electrical lines on East side of Hamilton Road above the proposed well locations. Driller agrees to drill wells closer to road (so not directly under lines).

MW-R1 (B2 location):
8:30 B2 location – begin drilling
9:00 First core (42,48,50) at 18.5 feet to 19.5 feet BGS; as string is pulled, water noted at about 17 feet BGS; Bottom of core is gravels, very loose, top is sandy gravels; poor recovery, decide to attempt again.
Second attempt at core 19.5 –20.5 feet BGS; minimal recovery – gravels with sand.
Third attempt at core 20.5 to 21 feet BGS; sandy gravel; relatively good recovery.
LOG: ** Note: soils logged off auger flights so all depths and geology are very approximate!
5-13 feet BGS: gravelly sand
17-21 feet BGS: sandy gravel
21- 39 feet BGS: increasingly sandy with gravels with silt
10:15 Deep core (42, 100, 100) at 38 – 39 feet BGS; silty fine-medium sand with some gravel .
10:45 Installed screen 17 – 27 feet BGS with 2 feet of sand above screen
11:10 Set well with pure gold bentonite chips and concrete
11:45 Well development; well went dry after ½ 55 gallon drum, waited about 15 minutes for recharge then bailed another ½ 55 gallon drum. Water was cleaner then initially but still some turbidity.

MW-R2:
12:05 Setting up on next MW location
12:15 Started drilling
12:30 Heavy rain, drillers took 10 minute lunch break
LOG: 5-13 feet BGS: gravelly sand
13–28 feet BGS: silty sand with gravel; water estimated at 18 feet BGS
1:05 Talked with Ron Michelson (Lakeside) no problem with flaggers tomorrow 8-5:00
1:10 Setting screen 17-27 feet BGS
1:45 Developing well
2:30 Moving to R3 (shoulder is soft so, moved to R5 location instead)

MW-R5:
2:30 Driller decided to wait on R3, 4 and 6 until tomorrow – he'd bring plywood and 2x6
2:45 Start drilling
LOG: 5 – TD: silty, fine-medium sand with some gravel; water estimated at 17 feet BGS
3:45 Screen set at 18-28 feet BGS
5:30 Move rig off shoulder; Lakeside packing up. Total for Lakeside: 10 hours
5:45 Drillers moving all drums of water and soil to back of United Rental

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Alexanian 6/17/99

June 9, 1999

6:45 Ecology on Site
7:00 Cascade Drilling on Site
8:00 Lakeside Industries on Site

MW-R7:
7:15 Mast up on rig
LOG: 0-5 feet BGS: gravelly, clayey silt
5-10 feet BGS: gravelly, sandy very clayey silt
10-15 feet BGS: gravelly, sandy silt with some clay
15-28 feet BGS: gravelly, silty sand to sandy silt with some clay
7:40 Set screen at 17-27 feet BGS
8:20 Setting well; developing (again, 1 barrel of water)

MW-R6:
9:15 Setting up rig on plywood
9:25 Start drilling
LOG: 0-5 feet BGS: wet silty sand (next to ditch with about 7 inches of water)
5-10 feet BGS: dry, very silty sand with clay
10-15 feet GS: very silty sand with clay; water at about 14-15 feet BGS
15-TD: very silty sand with clay and gravels
9:40 Set screen and 16-26 feet BGS
9:45 Drillers aide discovered only 6 bags of correctly sized sand – rest of bags loaded on truck were too fine. Driller called Portland office to get delivery of correct size.
10:05 Started setting well with 6 bags of sand
10:20 Driller said sand should be here in about 45 minutes; moving drums to back of United Rentals;
10:45 Aides marking well id's; driller writing up notes
11:00 Stopped work; waiting on sand
11:45 Truck with sand arrived
12:15 Developing well – water is relatively clear
12:50 Moving rig to R3 – setting up plywood support; finish monument on R6

MW-R3:
1:00 Positioning rig
1:15 Begin drilling
LOG: 0-10 feet BGS: silty, clayey sand with some gravel
10-16 feet BGS: sandy, clayey silt with some gravel; water at about 16 feet BGS
16-TD: sandy, clayey silty with more gravel than above – very slow drilling
24 feet BGS: driller hit rock – no headway for 15 minutes; Ecology told driller to set screen at 24 feet rather than taking time to skid rig and redrill to 27 feet
2:05 Set screen at 14-24 feet BGS
2:40 Developing well; water fairly turbid
3:00 Mast down, moving drums, concreting monument

MW-R4:

3:25 Start drilling

LOG: 0-10 feet BGS: slightly more gravelly (than R3), sandy silt
10-15 feet BGS: as above with some clay
15-26 feet BGS: clayey, very silty sand with gravels

3:45 Set screen at 16-26 feet BGS

4:30 Developing well – water quite turbid

4:40 Finish well; move drums to United Rental

5:00 Dismissed Flaggers. Lakeside day total: 9 hours; Total for job: 19 hours

5:30 finish concreting well

6:00 Left site

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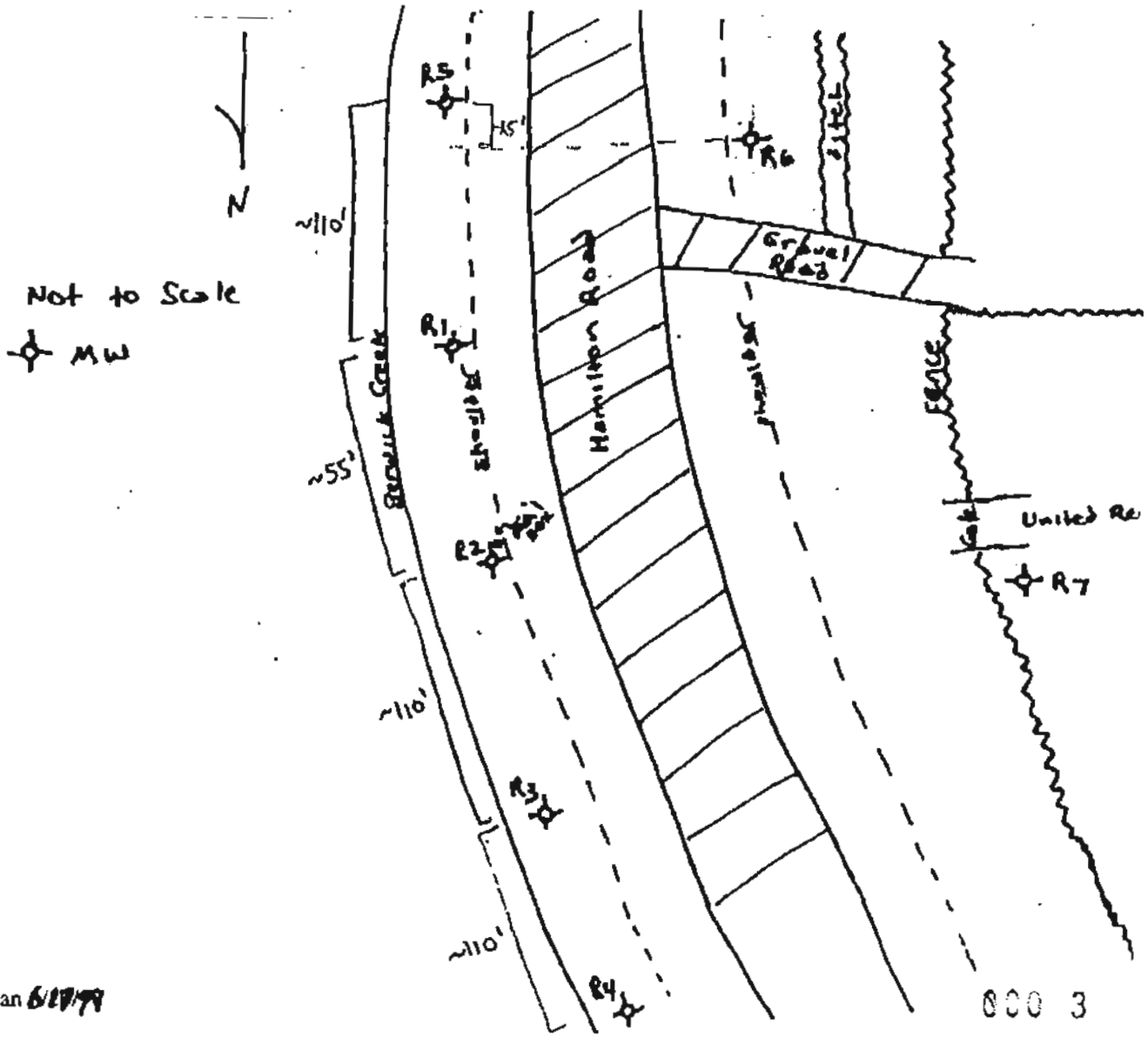

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03_SAIC Logs 1999

APPENDIX A

WELL CONSTRUCTION DIAGRAMS AND BOREHOLE LOGS

SAIC	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-001/MW-1	Page 1 Of 2
			Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Chehalis livestock, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/18/97
Depth Water First Encountered: ~3 1/2' bgs
Ground Surface: 207.55 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 2/19/97
Completion Depth: 47' bgs/46.42' BTOC
Top of Well Casing: 207.03 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0–4	2" Sch 40 PVC Riser Pipe; Quick Grout™	GW/GM	GRAVEL; very coarse pebbley gravel (32–64 mm), subrounded (60%), with some fine sand (30%) and few silt, trace clay; well graded/poorly sorted. 10YR 6/6 yellowish brown, moist to wet	description from cuttings. Organic Vapor (OV)= 0 ppm
01	5 15 25	50%	5–7			SILT; w/clay (<3%); fine subangular gravel (15%) and fine sand (20%), firm, moist to wet, well graded/poorly sorted. 10YR 6/6 yellowish brown.	SB-001-01 from 5–7' bgs OV=5 ppm
02	15 25 23	50%	10–12			SAND; (fine) with silt (15%) and trace clay, stiff reddish zone @ 10.5 bgs, trace rounded gravel (50 mm) in size. 10YR 6/6 yellowish brown. saturated.	SB-001-02 from 10–11.5' bgs OV=5 ppm
03	60 50/1.5'	50%	15–17			GRAVEL; coarse (20–40 mm) very angular and black, some fine sand, little silt and trace clay, saturated, 10YR 6/6 yellowish brown, poorly sorted	SB-001-03 15–16.5' bgs, OV=10 ppm
			18–19				drilling through 15–20' cobbles?
04	20 50/4.5'	50%	20–23			GRAVEL; fine (10–15 mm) with some fine sand (30%), some silt (20%), trace clay, poorly sorted, saturated. 10YR 6/6 yellowish brown, highly oxidized.	hard drilling @ 22' bgs OV=10.5 ppm
05	100 50/3'	20%	25–29			GRAVEL; coarse (20–40 mm) subround to subangular; little fine sand, trace silt, hard to very dense, wet. 10YR 4/6 dark yellowish brown, poorly sorted.	recovery in shoe only OV=7.5 ppm

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-001/MW-1	Page 2 Of 2 Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Chehalis livestock, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/18/97
Depth Water First Encountered: ~3 1/2' bgs
Ground Surface: 207.55 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 2/19/97
Completion Depth: 47' bgs/46.42' BTOC
Top of Well Casing: 207.03 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			30				
06	45 50/2"		31 32	Bent. Chips	GW/GM	GRAVEL; subrounded to subangular (10–50 mm) in size black; w/fine sand (30%) and little silt. 10YR 4/3 brown wet. dense, poorly sorted/well graded	SB-001-06 (30–31.5' bgs) OV=3 ppm
			33 34	Bent. Pellets			
07	45 50/3"		35 36 37		GM	GRAVEL; subangular to subrounded (15–30 mm) in size, w/some silt (15–20%), trace clay. 10YR 5/8 yellowish brown, wet, poorly sorted/well graded; dense	SB-001-07 (35–36.5' bgs) OV=11 ppm
			38 39	2" 20-slot Sch 40 PVC screen			
08	80 50/1"		40 41 42	10/20 Silica Sand	SW/SM	SAND; fine with angular to subangular fine to medium gravel (35%), some silt, wet, loose. 10YR 5/8 yellowish brown.	SB-001-08 (40–41.5' bgs) OV=18 ppm
			43 44				
09	40 50/4"		45 46		SP/SM	SAND; fine (40%); medium angular gravel (40%), little silt. 10YR 5/8 yellowish brown. dense, wet	may be slough? SB-001-09
			47		CL	CLAY; w/some silt (25%) and little fine sand 5BG 4/1, dark greenish gray, moist, very stiff	easy drilling begins @ 46' bgs Clay @ 46' bgs
			48 49				
10			50			Total depth 50' bgs	
			51 52 53 54 55 56 57 58 59				

SAIC	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-002/MW-2	Page 1 Of 2 Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Chehalis livestock, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/20/97
Depth Water First Encountered: ~3' bgs
Ground Surface: 208.63 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 2/24/97
Completion Depth: 47' bgs bottom of sump/screen @ 45' bgs
Top of Well Casing: 208.17 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0–4	Vault	GM	GRAVEL; angular to subrounded w/some silt and fine sand, 10YR 4/3 brown, wet, poorly sorted.	description from cuttings
01			5–7	2" Sch 40 PVC Riser Pipe; Quick Grout™	GM	GRAVEL; subrounded to rounded 10–20 mm in size (45%) with matrix of silt (25%) and fine sand (25%), trace clay wet, poorly sorted. 10YR 4/3 brown.	SB-002-01-01 collected 5–6.5' bgs (silty gravel w/sand)
02	2 13 18	50%	10–11		ML	SILT; with trace fine sand and trace clay (slightly mottled). 7.5YR 5/1 gray to 7.5YR 5/4 brown.	SB-002-02-01 collected 10–11.5'
			12–13		ML/OL	SILT; w/some clay 7.5YR 4/3 brown from 10.7–11' bgs	hard drilling @ 12' bgs properties of silt and lean clay mixture w/gravel.
					GM	silty GRAVEL (10–20 mm) @ 11' bgs	
03	50 100/3'	50%	15–18		SM	SAND; fine (40%) with some silt (35%) and little subround to rounded gravel (10–20 mm) in size. 10YR 4/4 dark yellowish brown; wet, poorly sorted.	SB-002-03-01 (silty sand with gravel)
04	15 150/4'	20%	20–23		GM	GRAVEL; subround to rounded 10–20 mm in size w/some fine sand and silt; wet, 10YR 4/4 dark yellowish brown, poorly sorted	SB-002-04-01 20–21.5' bgs; poor recovery, may be slough, (silty gravel w/sand), hard drilling 20–25' bgs
05	NR	20%	25–27		SM	SAND; fine with some subround to round gravel (10–15 mm) some silt 10YR 4/6 dark yellowish brown, wet	may be slough, poor recovery

SAIC	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-002/MW-2	Page 2 Of 2 / Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Chehalis livestock, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/20/97
Depth Water First Encountered: ~3' bgs
Ground Surface: 208.63 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 2/24/97
Completion Depth: 47' bgs bottom of sump/screen @ 46' bgs
Top of Well Casing: 208.17 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
06	NR	50%	30–32	Bent. Chips	GM	GRAVEL; subround to round (10–15 mm) in size (40%); with some fine sand and silt poorly sorted, wet, 10YR 4/4 dark yellowish brown.	SB-002-06-01 (silty gravel w/sand)
			33–34	Bent. Pellets			
07	15 50/4"	50%	35–36		GM	GRAVEL; round, 10 mm in size (50%) with little fine sand (205) and silt (25%) and trace clay, poorly sorted wet. 10YR 4/4 dark yellowish brown.	SB-002-07-01 (silty gravel w/sand)
			37–39	2" 20-slot Sch 40 PVC screen	SM	SAND; fine to medium with little silt (15%) moderate sorting medium dense. 10YR 3/6 dark yellowish brown.	SAND; 36–36.5' bgs (silty sand)
08	53 50/2"	50%	40–42	10/20 Silica Sand	GM	GRAVEL; subround to round 10–15 mm in size (50%) with little fine sand (25%) and silt (20%), trace clay. Very dense, poorly sorted. 10YR 4/4 dark yellowish brown.	SB-002-08-01 40–41.5' bgs (silty gravel w/sand)
09	25 50 50/4 1/2"	50%	43–47		GM	GRAVEL; rounded 15–20 mm in size (45%); with some fine to medium sand (35%) and little silt; occasional cobbles 40–50 mm in size. 10YR 5/6 yellowish brown.	SB-002-09-01 45–46.5' bgs (silty gravel w/sand)
10	NR	100%	48–59	PVC Sump		SILT; w/some clay (45%), slightly moist, stiff, low plasticity. 5BG 4/1 dark greenish gray @ 46' bgs	Drilled to 49' bgs

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-003/MW-3	Page 1 Of 2 Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: High Reach, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/24/97
Depth Water First Encountered: ~4' bgs
Ground Surface: 209.49 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Dave Sullivan
Date Completed: 2/26/97
Completion Depth: 46' bgs to bottom of sump
Top of Well Casing: 211.64 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0–4	2" Sch 40 PVC Riser Pipe; Quick Grout™		Top soil organic-rich, loamy silt w/trace clay; some rootlets and rounded gravels 10 mm in size. 5Y 3/2 dark reddish brown.	0–10' bgs soils described from cuttings
01	NR	50%	5–7		GM	GRAVEL; subrounded to rounded 15–20 mm in size (50%) and medium sand (30%) and silt (20%). 10YR 4/4 dark yellowish brown; wet, hard drilling	hard drilling @ 6.5' bgs (silty gravel w/sand)
			8–9				hard drilling @ 10' bgs
02	20 20 40	50%	10–12		SM	SAND; fine to medium (45%); with some silt (30%) and little rounded gravel 10 mm in size (25%), wet loose, poorly sorted.	SB-003-002 10–11.5' bgs (silty sand w/gravel) Organic Vapor (OV)= 8.0 ppm
03	40 50/4"	50%	13–17		GM	GRAVEL; fine to medium, rounded to subrounded (30%) with some coarse sand (30%) and fine sand (30%), few silt (10%) wet, poorly sorted, loose.	SB-003-03 (silty gravel w/sand) OV=7.0 ppm
04	40 50/3"	50%	18–22		GM	GRAVEL; fine (4.8–10 mm) subangular to rounded, w/little very angular gravel (65%), with little medium to fine sand (25%) and silt (10%), poorly sorted. 10YR 3/4 dark yellowish brown, wet.	SB-003-04 one very large subangular cobble (95 mm) in sampler OV=24.0 ppm
05	NR	50%	23–25		GP	GRAVEL; fine (4.8–7 mm); black subangular to yellowish brown and reddish brown (75%) with little coarse sand (20%) and silt (5%) trace gravel (20 mm) wet. 10YR 2/2 very dark brown.	very hard drilling @ 22' bgs. OV=4.8 ppm
			26–29		SM	SAND; (med to CSC)(45%) with large cobble (75 mm) and silt (30%) gravel (CSC)(15%) wet	poorly graded gravel w/sand

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-003/MW-3	Page 2 Of 2 Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: High Reach, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/24/97
Depth Water First Encountered: ~4' bgs
Ground Surface: 209.49 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Dave Sullivan
Date Completed: 2/26/97
Completion Depth: 46' bgs to bottom of sump
Top of Well Casing: 211.64 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
06	6 30 50/4"	50%	30–34	Bent. Pellets	SM	SAND; medium (45%) with some subangular to subrounded gravel (10–20 mm) in size (30%) and little silt (25%); trace cobbles, (40 mm) rounded. 10YR 3/6 dark yellowish brown	SB-003-06 30–31.5' bgs occasional cobbles/ gravels. Hard drilling @ 33' bgs (silty sand w/gravel) OV=11.0 ppm
07	NR	50%	35–39	2" 20-slot Sch 40 PVC screen; 10/20 Silica Sand	SM	SAND; medium (55%) with some silt (35%) and round to subrounded gravel 20 mm in size (5%); medium dense, wet, poorly sorted. 10YR 3/6 dark yellowish brown.	SB-003-07 35–36.5' bgs (silty sand) OV=14.0 ppm
08	6 30 50/5"	50%	40–44	2" 20-slot Sch 40 PVC screen; 10/20 Silica Sand	SM	SAND; medium (65%) with little silt (25%) and subrounded gravel 10–15 mm in size (5%), medium dense.	SB-003-08 (silty sand) OV=8.0 ppm
09	15 13 50/5"	20%	45–46	2" 20-slot Sch 40 PVC screen; 10/20 Silica Sand	SM	SAND; medium (65%) with some silt (30%) and black cobbles (65 mm) rounded. 10YR 3/6 dark yelow brown, very dense, moist.	little recovery OV=3.0 ppm
			47–49	2" PVC sump 46.1' bgs	CL/ ML	SAND; medium with silt and some clay, highly oxidized, very dense. 7.5YR 5/8 strong brown lamina throughout, slightly moist	OV=15.0 ppm
			50–59	2" PVC sump 46.1' bgs	CL/ ML	CLAY; w/some silt (45%), low plasticity, slightly moist to dry. 5BG 4/1 dark greenish gray. Clay @ 47' bgs	

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-003a/MW-3a	Page 1 Of 1
			Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Chehalis livestock, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/24/97
Depth Water First Encountered: ~3' bgs
Ground Surface: Not surveyed

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Mike Brankline
Date Completed: 2/24/97
Completion Depth: not completed as well; borehole abandon 0-20'bgs
Top of Well Casing: None installed

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0			Top soil and grass; organic-rich, loamy silt and trace clay; some rootlets and rounded gravel 10 mm in size, moist. 5Y 3/2 dark reddish brown	drilling through cobbles # 3' bgs Organic Vapor (OV)= 1 ppm
			1				
			2				
			3				
			4				
			5		SM	SAND; fine to medium w/some silt (35%) and trace organic material; rounded gravel 10 mm in size (15%); dense. 10YR 4/4 dark yellowish brown, wet, poorly sorted	
	15 50/1"	50%	6				
			7				
			8				
			9				
			10		SM	SAND; fine to medium with some silt (30%) and little rounded gravel 15-20 mm in size, wet. 10YR 4/4 dark yellowish brown. dense poorly sorted.	SB-003-02-01 10-11.5' bgs (silty sand w/gravel) OV=0 ppm
	15 45 50/5"	50%	11				
			12				
			13				
			14				
			15		GM	GRAVEL; subangular to subround 10-20 mm in size (50%) w/little angular gravel 5 mm in size and medium sand (25%) and silt (25%); wet, poorly sorted. 10YR 4/6 dark yellow brown	SB-003-03-01 15-16.5' bgs (silty gravel w/sand) OV= 4.0 ppm
	35 33/4"	50%	16				
			17				
			18				
			19				
			20			20' total depth - could not advance augers past 20' bgs, presume large cobbles @ 20' bgs. Move off hole to location ~10' east	no recovery
	100/5	50% 1/2"	21				
			22				
			23				
			24				
			25				
			26				
			27				
			28				
			29				

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-004/MW-4	Page 1 Of 2 Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Veenhouwer Property, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/26/97
Depth Water First Encountered: ~2' bgs
Ground Surface: 205.14 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 2/28/97
Completion Depth: 46' bgs bottom of sump
Top of Well Casing: 207.94 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0, 1, 2, 3, 4				
01	NR	50%	5, 6, 7		ML	SILT; w/little trace clay, mottled 7.5YR 5/8 strong brown; 7.5YR 4/1 dark gray, rootlets, moist, low plasticity. firm.	SB-004-01 5-6.5' bgs Organic Vapor (OV)= 350 ppm
			8, 9				hard drilling @ 8' bgs diller feels cobbles
02	60 50/2"	40%	10, 11, 12		GM	GRAVEL; subangular to subrounded 10-20 mm in size, with some sand (30%) and silt (35%) and little clay. 10YR 4/4 dark yellow brown. wet.	silty gravel w/trace clay in cutting from 10-15' bgs OV=350 ppm
			13, 14				
03	100 for 5"	20%	15, 16, 17		GM	GRAVEL; black angular gravel 10-20 mm in size, with some silt and some coarse sand 10YR 4/6 dark yellow brown. wet	little recovery OV=75 ppm
			18, 19				
04	3 60 50/3"	20%	20, 21, 22	2" Sch 40 PVC Riser Pipe	SM	SAND; medium (50%) with rounded gravel (5-30 mm) in size (40%), with little silt (20%) wet medium dense	OV=0 ppm
			23, 24				
05	NR	50%	25, 26, 27	Quick Grout	SM	SAND; medium (55%) with little silt (20%) and coarse gravel (15%), cobbles (10%). to YR 3/6 dark yellowish brown wet. very dense	OV=104 ppm
			28, 29				

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-004/MW-4	Page 2 Of 2 Field Book No.: 1

Project Number: 01-0817-05-7393
Borehole Location: Veenhouwer Property, Chehalis, WA
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 2/26/97
Depth Water First Encountered: ~2' bgs
Ground Surface: 205.14 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 140 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 2/28/97
Completion Depth: 45' bgs bottom of sump
Top of Well Casing: 207.94 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
06	N/C	50%	30–32	Bent. Pellets; 2" Sch 40 PVC, 20-slot well screen; 10/20 Silica Sand	GM	GRAVEL; subrounded to subangular 10–35 mm in size (45%) with sand (40%) and silt (10%), trace clay, dense. 10YR 4/6 dark yellowish brown	SB-004-06 30–31.5; bgs OV= 350 ppm
07	N/C	50%	35–39		GM	GRAVEL; subrounded to subangular 20–40 mm in size (45%) with medium to coarse sand (30%) and silt (20%), trace clay (5%). 10YR 4/6 yellowish brown	SB-004-07 35–36.5; bgs OV=500 ppm
08	14 100/5"	50%	40–44		SM	SAND; medium to coarse (50%) with subrounded gravel 10–30 mm in size (10%) some silt (30%) and few clay (10%), trace cobbles 60–70 mm in size. 10YR 4/6 dark yellowish brown, moist.	SB-004-08 40–41.5; bgs OV=180 ppm
09	3 14 40	50%	45–46	2" PVC Sump	ML/CL	SILT; w/clay (40%) and little fine sand. slightly moist to dry to 46' bgs. 5 BG 4/1 dark greenish gray.	SB-004-09 45–46.5; bgs
			47–59				

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-005/MW-5	Page 1 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 4/28/97
Depth Water First Encountered:
Ground Surface: 211.57 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 4/29/97
Completion Depth: 48.8' bottom of sump/47.8 bottom of screen
Top of Well Casing: 213.78 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0	2" Sch 40 PVC Riser Pipe		GRAVEL FILL	parking lot gravel
			1				
			2		SM	SAND; with (45%) subangular gravel (30-40 mm) in size, some silt, moist 7.5YR 4/4 brown.	
			3				
			4				
			5		ML	SILT; with trace clay (5%) and 10-15% coarse subangular sand, moist, soft, moderate plasticity. 7.5YR 4/4 brown	Organic vapor (OV)= 0 ppm headspace
01	4 4 6	50%	6				
			7				
			8				
			9				
			10		SM	SAND; fine to medium sand, trace subangular gravel (20 mm) in size, silt (30%) one large subrounded cobble (90 mm in size), moist to wet 7.5YR 4/4 brown.	@ 9-9.5' bgs driller says formation is getting much harder, OV=1 ppm
02	1 4 3	50%	11				
			12				
			13				
			14				
			15		GW	GRAVEL; coarse subround to angular gravel up to 50 mm in size, with some fine to medium sand (30%), trace silt, wet 7.5YR 4/4 brown with some yellow streaks.	gravel broken by hammer blow OV=1 ppm
03	13 21 25	50%	16				
			17				
			18				
			19				
			20		GM/SM	GRAVEL; sandy gravel or gravelly sand equal parts of subrounded broken gravel (4-20 mm) in size and sand with some silt (30%) wet 7.5YR 4/6 strong brown.	gravel broken by hammer blow
04	15 50 for 5 1/2"		21				
			22				
			23				
			24				
			25		SM	GRAVEL; subrounded gravel (15-40 mm in size) in a matrix of fine to medium sand (25%) and silt (10%), very hard/dense,wet. 10YR 4/6 strong brown to yellowish brown. A few oxidized zones.	SB-005-05-01 collected for SW8260 analysis OV=4 ppm
05	8 17 30		26				
			27	Bentonite Pellets			
			28				
			29				

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-005/MW-5	Page 2 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 4/28/97
Depth Water First Encountered:
Ground Surface: 211.57 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 4/29/97
Completion Depth: 48.8' bottom of sump/47.8 botton of screen
Top of Well Casing: 213.78 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
06	4 32 50	70%	30–34	Bentonite Pellets	SM / GM	SAND; medium sand with some silt (20%) (30–30.5' bgs) grades into GRAVEL; subrounded (15–50 mm in size), some fine angular gravel (broken by hammer blow). Gravel in matrix of plastic silt (15%) and fine sand (15%), trace clay. Well graded, wet, very dense. 7.5YR 4/4 brown.	very dense, hard formation. OV=2 ppm
07	25 35 50 for 3"	70%	35–38	2" Sch 40 PVC, 20-slot well screen; 10/20 Silica Sand	GP	GRAVEL; subround to subangular and elongate (5–15 mm in size), little fine to medium sand (15%) and trace silt, hard poorly graded 7.5YR 5/4 brown.	very hard drilling SB-005-07-01 collected for SW8260 analysis, OV=2 ppm
08	20 50 50 for 4"	70%	38–45		GM	GRAVEL; subround to round (5–40 mm in size) (60%) in matrix of fine to medium sand (30%) and silt; poorly sorted/well graded, hard, wet. 10YR 4/4 yellowish brown.	SB-005-08-01 collected for SW8260 analysis
09	20 30 50	70%	45–47		SP/SM	SAND; medium sand (60%) with some subrounded gravel (5–15 mm in size), little silt, poorly sorted, wet. 10YR 4/4 yellow brown.	SB-005-09-01 collected for SW8260 analysis, clay @ 47.5' bgs, OV=3 ppm
10	5 15 5	100%	47–49		ML	CLAY; with fine sand (20%) and silt, mottled olive brown with oxidized red-orange and brown spots throughout. @ 48' CLAY with some silt, blue gray, 49' TD.	driller feels lithology change while drilling TD=49' bgs OV=0 ppm
			49–59	2" PVC Sump			

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-006/MW-6	Page 1 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 4/29/97
Depth Water First Encountered:
Ground Surface: 210.28 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 4/29/97
Completion Depth: 48.8' bottom of sump/47.8 bottom of screen
Top of Well Casing: 209.88 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0	2" Sch 40 PVC Riser Pipe; Quick Grout™		GRAVEL	parking lot gravel
			1				
			2				
			3				
			4				
01	1 4 5	50%	5 6 7		ML	SILT; with trace clay (10%) and trace subangular coarse sand, mottled. 10YR 4/4 dark yellowish brown to 10YR 5/1 gray, soft, moist, moderately plastic	looks like fill (Organic vapor) OV= 0 ppm
			8				
			9				
02	4 4 5	50%	10 11 12		ML	SILT; with trace clay (10%) with trace subangular coarse sand, olive gray, moist moderately plastic soft.	OV=0 ppm
			13				
			14				
03	19 20 16	60%	15 16 17		GW/GM	GRAVEL; well graded, fine angular to subangular gravel (4.8–7 mm) with subround to subangular gravel (70%) (30 mm in size); in matrix of clayey silt (10%) and fine sand (15%), wet. 10YR 5/6 yellowish brown.	some gravel broken by hammer blows OV=0 ppm
			18				
			19				
04	20 20 15	60%	20 21 22		GM/GM	GRAVEL; well graded fine to coarse black angular gravel (60%) (largest 60 mm in size) in matrix of medium to coarse sand (25%), silt (10%) and trace clay. 10YR 5/6 yellowish brown.	OV=0 ppm
			23				
			24				
05	13 26 13		25 26 27		SM	GRAVEL; subrounded gravel (5–30 mm in size), in matrix of silt (5%) and fine sand (60%), color varies from 10YR 6/6 brownish yellow to 7.5YR 6/8 reddish yellow, wet.	easy drilling 27–30' bgs SB-006-05-01 submitted for SW8260 analysis
			28				
			29				

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-006/MW-6	Page 2 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 4/28/97
Depth Water First Encountered:
Ground Surface: 210.28 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 4/29/97
Completion Depth: 48.8' bottom of sump/47.8 botton of screen
Top of Well Casing: 209.88 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
06	29 50 29	50%	30–34	Bentonite Pellets	SM	SAND; fine to medium sand (50%) with silt (20%) and subrounded to rounded gravels (4–10 mm in size), some subangular gravel (20–40 mm in size), hard, wet, 7.5YR 6/8 reddish yellow to 10YR 6/6 brownish yellow.	matrix supported gravels. SB-006-06-01 submitted for SW8260 analysis, OV=0 ppm
07	13 19 50 for 4"	60%	35–37	2" Sch 40 PVC, 20-slot well screen; 10/20 Silica Sand	SM	same as above	SB-006-01-01 submitted fo FW8260 analysis. OV=0 ppm
08	16 36 18	60%	40–42		SM	same as above	OV=0 ppm
09		50%	45–47		SM	same as above	
10	10 15 10	100%	48–49		ML	SILT; with clay (25%), dry, low plasticity, hard, blue gray. TD=49' bgs	SB-006-09-01 submitted for SW8260 analysis. OV=9 ppm
			50–59	2" PVC Sump			

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-007/MW-7	Page 1 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 5/2/97
Depth Water First Encountered:
Ground Surface: 205.43 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 5/2/97
Completion Depth: 48.8' bottom of sump/47.8 bottom of screen
Top of Well Casing: 205.26 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0, 1, 2, 3, 4	2" Sch 40 PVC Riser Pipe; Quick Grout™			
			5		ML	SILT; with some clay; trace medium angular gravel (40 mm in size), moist to wet. 10YR 4/4 dark yellowish brown.	
01		50%	6, 7, 8, 9				
02	12, 20, 30		10, 11, 12, 13, 14		ML	SILT; with little clay, trace medium angular sand and angular gravel (40 mm in size). firm, moist. 10YR 4/4 dark yellowish brown	Organic vapor (OV)= 2 ppm
03	18, 14, 15		15, 16, 17, 18, 19		GM	GRAVEL; medium to coarse subrounded gravel (70%) in matrix of fine sand (10%), silt (15%) and clay (5%), wet, plastic. 10YR 4/4 dark yellowish brown.	OV=0 ppm
04	12, 29, 45		20, 21, 22, 23, 24		GM	GRAVEL; (5-25 mm in size) subround to round (60%) in matrix of silt (20%) and fine sand (20%), wet, dense. 10YR 4/4 dark yellowish brown.	OV=1 ppm
05	11, 30, 39		25, 26, 27, 28, 29		SM	SAND; fine to medium (50%) with elongate subrounded gravels (20 mm), larger angular gravel (broke by hammer blows) and silt (15%) (60 mm maxium grain size), wet, dense (black). 10YR 4/4 dark yellowish brown.	OV=1 ppm

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-007/MW-7	Page 2 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 5/2/97
Depth Water First Encountered:
Ground Surface: 205.43 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 5/5/97
Completion Depth: 45' bgs sump/44' bgs screen
Top of Well Casing: 205.26 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			30	Pellets			
06	20 49 50	50%	31			as above	matrix supported gravels. SB-006-06-01 submitted for SW8260 analysis, OV=0 ppm
			32				
			33				
			34	2" Sch 40 PVC, 20-slot well screen			
			35		SM	SAND; fine to medium (60%) with rounded gravel (10-30 mm), (35%) trace silt, dense, wet. 10YR 4/4 dark yellowish brown.	SB-007-07-01 submitted for SW8260 analysis.
07	NR	60%	36				
			37				
			38				
			39				
			40	10/20 Silica Sand			
D8	15 15 50 for	60% 5.5"	41		GW/GM	GRAVEL; rounded to subround 7-20 mm size gravels (65%) in matrix of fine to medium sand (20%) and silt (10%), trace clay. highly oxidized reddish-orange brown.	field dup collected @ this depth. SB-007-08-01 submitted for SW8260 analysis. OV=0 ppm
			42				
			43				
			44				
			45				
09	6 13 28	70%	46	2" PVC Sump	SM	SAND; fine sand with some silt and some clay, 45-45.5' bgs grades into silty CLAY, to clay @ 45.5' bgs high plasticity blue gray/moist.	field duplicate collected
			47				
			48				
			49			TD @ 46.5' clay	
			50				
			51				
			52				
			53				
			54				
			55				
			56				
			57				
			58				
			59				

SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-008/MW-8	Page 1 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 5/6/97
Depth Water First Encountered:
Ground Surface: 206.40 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 5/7/97
Completion Depth: 48.8' bottom of sump/47.8 bottom of screen
Top of Well Casing: 206.21 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
			0–4	2" Sch 40 PVC Riser Pipe; Quick Grout™	SM	SAND; medium to coarse (50%) with angular to subangular gravel (4.8 to 20 mm in size), (35%), silt (15%) with rootlets, soft. 10YR 4/2 dark grayish brown/wet.	SB-008-00-01 surface sample collected for SW8260 Organic vapor (OV)= 800 ppm
01	1 1 1	70%	5–7		ML	SILT; with trace coarse angular sand and trace subangular gravel (5–7 mm in size). 10YR 3/1 very dark gray, soft, low plasticity.	SB-008-01-01 submitted for SW8260
02	14 19 19	70%	8–12		SM	SAND; fine to medium (50%) with well graded subangular gravels (20 mm in size). (20%), silt (30%), moist.	
03	14 14 50 for 1	60%	13–17		SM	SAND; fine to coarse (50%) with subangular to subrounded and rounded gravel (4.8–20 mm in size), silt (15%), gravel in matrix of silty sand. 10YR 4/4 dark yellowish brown. firm.	hard drilling
04	6 8 16	60%	18–22		SM	SAND; fine to coarse (50%) with silt (10%) and subrounded to rounded gravel (4.8–15 mm in size).	
05		60%	23–29		SM	SAND; medium to coarse sand (40%) with silt (25%) and subrounded to subangular elongate gravel (20–30 mm in size), angular gravel broken by hammer blow. largest gravel subrounded (55 mm in size). wet. dense matrix support gravel, 7.5YR 4/4 brown.	

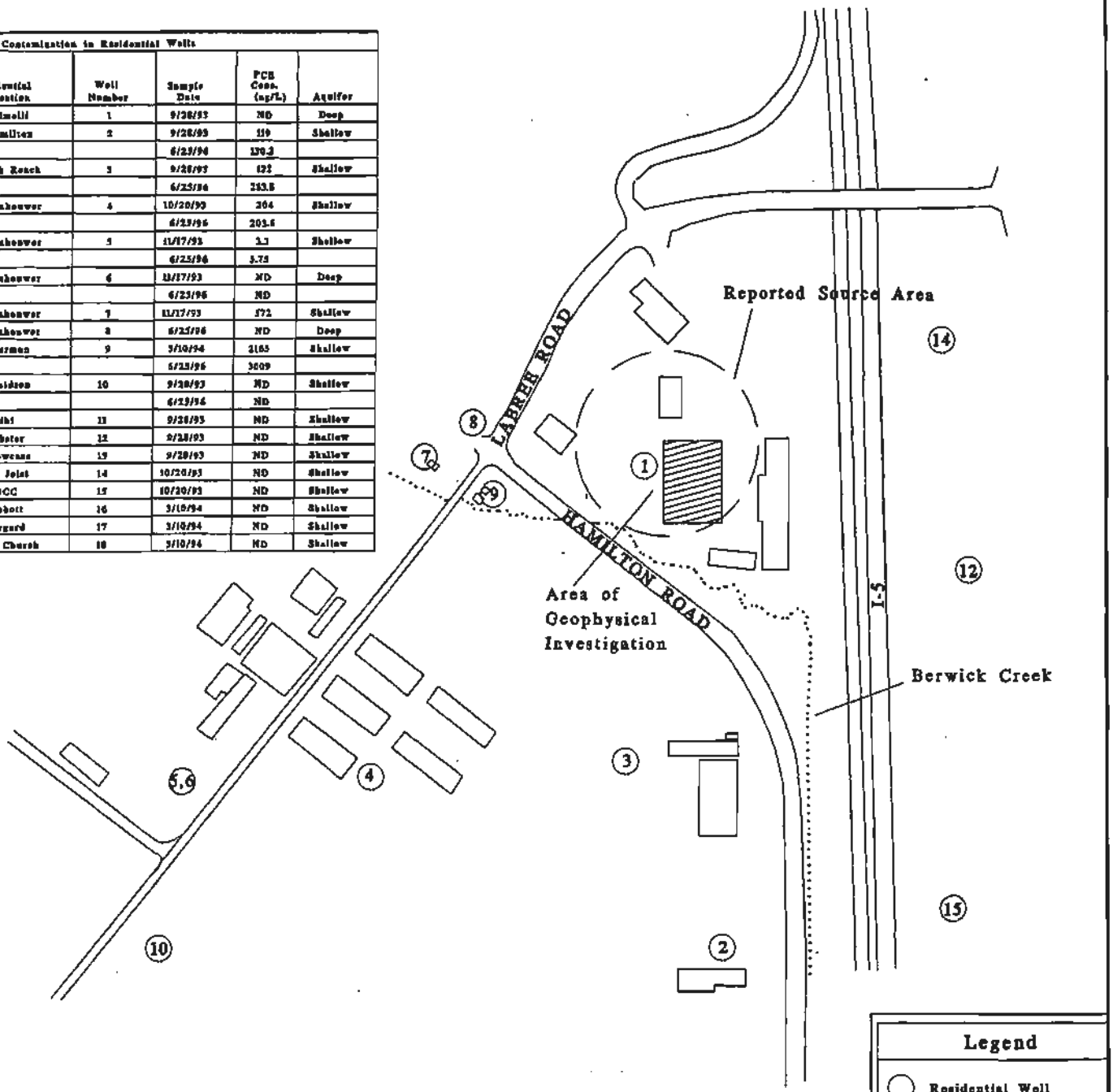
SAIC.	BOREHOLE LOG AND WELL CONSTRUCTION	ID Number: SB-008/MW-8	Page 2 Of 2 Field Book No.: 3

Project Number: 01-0817-05-7393
Borehole Location: North of Hamilton Road, along bend @ High Reach Road
Drilling Personnel: Jeff Kelley
Drilling Methods: Hollowstem auger
Sampling Methods: splitspoon
Field Geologist: Glenn Haupt
Date Started: 5/6/97
Depth Water First Encountered:
Ground Surface: 206.40 ft msl

Project Name: Hamilton/Labree PCE Site
Drilling Company: Tacoma Pump and Drill
Drill Rig Type/Number: Mobile B61 HDX
Bit Type/Size: 6 1/4
Hammer Wt: 300 lbs Drop: 30"
Assistant: Jim Blodgett
Date Completed: 5/7/97
Completion Depth: 46' sump 45' screen
Top of Well Casing: 206.21 ft msl

Sampling: Sample No.	Blow Count	Recovery	Depth (Feet bgs)	Approximate Well Construction	USCS Symbol	Lithologic Description	Remarks
06	12 30 50 for 3	60%	30–32	Bentonite Pellets		SAND; fine to medium, subangular with little silt grades into SAND with gravel. 7.5YR 4/4 brown. wet. hard	hard drilling
07	NR	60%	35–37	2" Sch 40 PVC, 20-slot well screen; 10/20 Silica Sand	SM	SAND; medium to coarse sand (65%) with silt (10%) and matrix supported fine to coarse gravel (4.8–25 mm in size). very hard/moist. wet. 7.5YR 4/4 brown	hard drilling. gravelly SAND. SB-008-07-01 collected for SW8260
08	14 40 50	60%	40–42		SM	SAND; medium (65%) and silt (10–15%) with matrix supported subrounded to rounded gravel (5–20 mm in size) (25–30%).	gravelly SAND MS/MSD collected SB-008-08-01 submitted for SW8260
09	15 12 14	60%	45–46		SM ML	gravelly SAND – as above, @ 45.5' bgs clayey SILT. 10YR 5/1 gray to brown gray very stiff to hard moist to dry.	gravelly SAND clayey SILT
			47–59			TD – 46.5 ft bgs	

PCE Contamination in Residential Wells				
Residential Location	Well Number	Sample Date	PCE Conc. (ug/L)	Aquifer
Balmelli	1	9/28/93	ND	Deep
Hamilton	2	9/28/93	119	Shallow
		6/23/96	170.3	
High Ranch	3	9/28/93	122	Shallow
		6/25/96	253.5	
Veenhouwer	4	10/20/93	264	Shallow
		6/25/96	203.6	
Veenhouwer	5	11/17/93	3.3	Shallow
		6/25/96	3.75	
Veenhouwer	6	11/17/93	ND	Deep
		6/25/96	ND	
Veenhouwer	7	11/17/93	372	Shallow
Veenhouwer	8	6/25/96	ND	Deep
Thurman	9	3/10/94	2165	Shallow
		6/25/96	3009	
Donaldson	10	9/28/93	ND	Shallow
		6/25/96	ND	
Sahi	11	9/28/93	ND	Shallow
Webster	12	9/28/93	ND	Shallow
Showcase	13	9/28/93	ND	Shallow
Web Joint	14	10/20/93	ND	Shallow
BCC	15	10/20/93	ND	Shallow
Abbott	16	3/10/94	ND	Shallow
Nygard	17	3/10/94	ND	Shallow
JNP Church	18	3/10/94	ND	Shallow



Note: Not all residential well sampling locations shown on table are within the boundaries of this figure

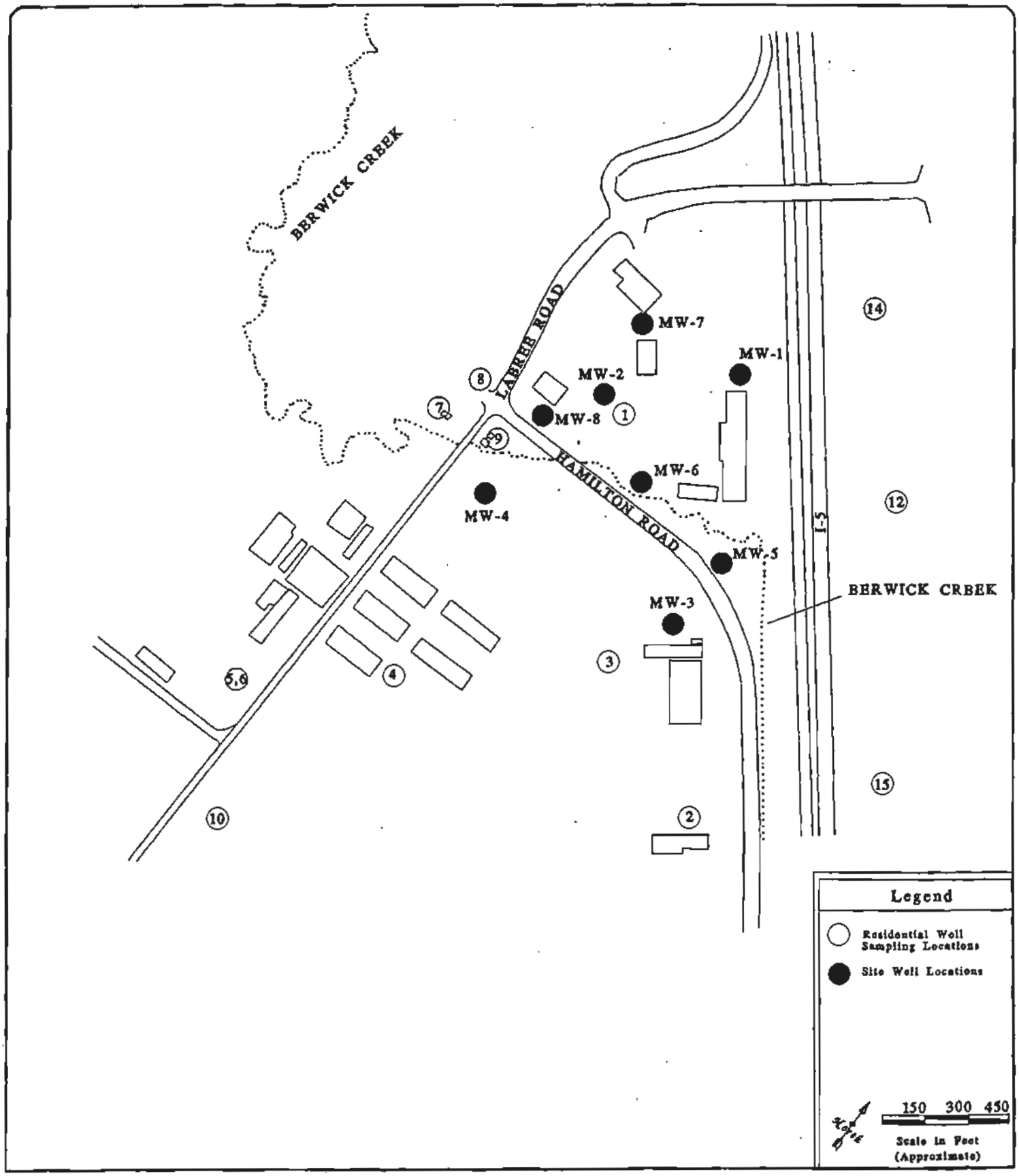
Legend

○ Residential Well Sampling Locations

150 300 450

Scale in Feet (Approximate)

State of Washington Department of Ecology Toxics Cleanup Program	Figure 2 Summary of Previous Investigations Hamilton/Labree PCE Site, Chehalis, Washington	SAIC.



State of Washington Department of Ecology Toxics Cleanup Program	Figure 3 Monitoring Well Locations Hamilton/Labree PCE Site, Chehalis, Washington	SAIC

04_E&E Boring Logs 2000

Borehole Record for SP-1

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR _____

Project Name: Hamilton/Labree

Site Location: Chehalis, WA

Date Started/Finished: _____

Drilling Company: ~~Lockheed Martin-ESAT~~ ESE SCALT

Driller's Name: Alan Jensen

Geologist's Name: _____

Geologist's Signature: _____

Rig Type (s): Geoprobe

Drilling Method (s): direct push

Bit Size (s): 2-in. Auger Size (s): NA

Auger/Split Spoon Refusal: _____

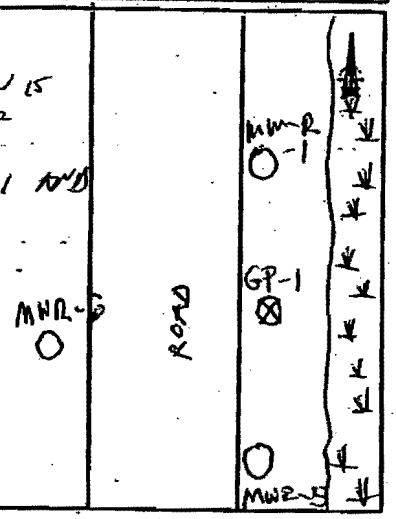
Total Depth of Borehole Is: _____

Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

GP-1 LOCATION IS ~2 FT EAST OF ROAD ~½ WAY BETWEEN MWR-1 AND MWR-2



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
0										
1	GP-01 -04		FILL					FILL		
2				0825		3.0'				
3			70H/15/15					CH		
4										
5	GP-1 -08			0840		0				
6										NO RECOVERY
7										
8										
9	GP-1 -12									
10				0900		10				NO RECOVERY
11										
12										
13	GP-1 -16	43 26	-/15/35/50	0915				GRN		
14										
15										

16

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

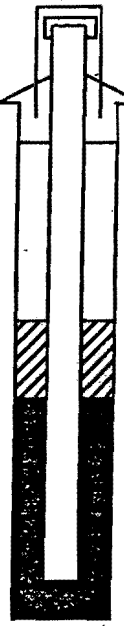
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

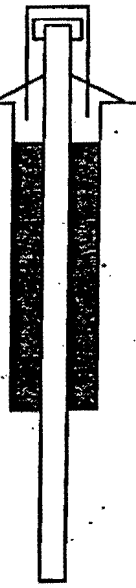
Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL



Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
0		○	○	○
1	FILL-GRAVEL	○	○	○
2	FAT CLAY WITH SAND & GRAVEL, GREY, MOIST, HIGHLY PLASTIC, WITH ROOTS.	○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	SILTY GRAVEL WITH SAND, LT BROWN, MOIST, ROUNDED,	○	○	○
14	WITH WEATHER, OXIDIZED, SAND AND MIXED WITH	○	○	○
15	WET SILT THROUGHOUT	○	○	○

16

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
16											
17	GP-1 -20										
18											SA LI BR
19											
			BEGAN USING MACRO CORE SAMPLER								
20											
21											
22	GP-1 -2A		7/5/15/80				2.0'		GW		INSU FIR FIR SAM
23											
24											
25											
26	GP-1 -28	1980	7/5/19/30		1115		3.0'		SW		
27											
28											
29											
30	GP-1 -32	120	7/5/80/15		1200		3.0'		SP		
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
16		O	O	O
17		O	O	O
18		O	O	O
19		O	O	O
20	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE	O	O	O
21	ANGULAR, BLACK, WET, WITH BROWN FINE TO COARSE	O	O	O
22	SAND AND BROWN SILT.	O	O	O
23		O	O	O
24		O	O	O
25	WELL GRADED SAND WITH GRAVEL, BROWN, WET,	O	O	O
26	FINE TO COARSE, ANGULAR, WITH ANGULAR FINE	O	O	O
27	TO COARSE GRAVEL, AND SILTY WATER.	O	O	O
28	~~[SAND FINED DOWNWARD; MORE UNIFORM (FINER) SIZE]~~	O	O	O
29	POORLY GRADED SAND WITH GRAVEL, FINE TO COARSE	O	O	O
30	SUBANGULAR TO SUBROUNDED, WET, BROWN, WITH ROUNDED AND ANGULAR FINE TO COARSE GRAVEL.	O	O	O
31		O	O	O
32		O	O	O
33	THE BORING WAS ABANDONED @ TD=32'	O	O	O
34	WHEN THE PROBE ROD BROKE DURING	O	O	O
35	EXTRACTION. ~24' OF PROBE ROD WAS	O	O	O
36	ABANDONED IN PLACE.	O	O	O
37		O	O	O
38		O	O	O
39		O	O	O
40		O	O	O
41		O	O	O
42		O	O	O
43		O	O	O
44		O	O	O
45		O	O	O

Borehole Record for GP2

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR GP-2

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished 6-20-00

Drilling Company Lockheed Martin-ESAT

Driller's Name Woody Campbell

Geologist's Name Reed Lyday

Geologist's Signature Reed Lyday

Rig Type (s) Geoprobe

Drilling Method (s) direct push

Bit Size (s) 2-inch Auger Size (s) NA

Auger/Split Spoon Refusal 30 ft

Total Depth of Borehole Is 30 ft

Total Depth of Corehole Is NA

Water Level ~~(TOIC)~~ BGS		
Date	Time	Level(Feet)
6/20/00	15:30	10 ft

~~Well Location Sketch~~

water level measured in co-located hole for shallow water sample.

Depth(Feet)	Sample Number GP-2-	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Sample ~~Penetration~~ Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2	04		gravel	10:21		100%			Ø	
3										
4										
5										
6	08		CL	10:39		85%			Ø	
7										
8										
9										
10	12		CL & gravel	10:45		80%			Ø	collected water sample @10'-14' @16'-31'
11										
12										
13										
14	16		CL	11:04		100%			Ø	
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:
Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____
- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:
- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

borehole grouted to surface

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION GP-2	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	gray gravel fill @ 0'-4'	○	⊗	○
5		○	○	○
6		○	○	○
7		○	○	○
8	clay, tan to gray, soft to firm @ 4'-8'. w/ gravel	○	⊗	○
9	clay, tan, soft, w/ gravel (primarily gravel	○	⊗	○
10		○	○	○
11		○	○	○
12		○	○	○
13	clay mud, tan, wet	○	○	⊗
14		○	○	○
15		○	○	○

Depth(feet)	GP-2 Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Sample Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Com
16											
17	20		CL & gravel		11:35		100%			7	
18											
19											
20											
21											
22	24		CL & gravel		12:30		100%			60	
23											
24											
25											
26	28		ML & gravel		13:25		100%			Ø	
27											
28											
29	32		GC		13:55		100%			Ø	sampl 28'-3
30											
31			Bottom of Hole								Refus 30
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

GC = clayey gravel

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
16		O	O	O
17	tan mud & black gravel	O	O	X
18	(sample barrel was pushed 16'-18', but 4' was collected.	O	O	O
19	will begin sampling again @ 20 ft	O	O	O
20		O	O	O
21	tan silty clay mud & black gravel	O	O	X
22		O	O	O
23		O	O	O
24	tan to gray sandy silty mud w/ black gravel	O	O	X
25		O	O	O
26		O	O	O
27		O	O	O
28	as above, w/ red sandy clay @ base —	X	O	O
29	silt, clay & gravel; red-tan-gray; intermixed &	X	O	O
30	poorly well graded; dry, rock appears weathered (red oxide material)	O	O	O
31	or altered. - REFUSAL @ 30 ft	O	O	O
32		O	O	O
33		O	O	O
34		O	O	O
35		O	O	O
36		O	O	O
37		O	O	O
38		O	O	O
39		O	O	O
40		O	O	O
41		O	O	O
42		O	O	O
43		O	O	O
44		O	O	O
45		O	O	O

Borehole Record for GP-3

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR GP-3

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished 6/21/00

Drilling Company Lockheed Martin-ESAT

Driller's Name Woody Campbell

Geologist's Name Reed Lyday

Geologist's Signature Reed Lyday

Rig Type (s) Geoprobe

Drilling Method (s) direct push

Bit Size (s) 2-in. Auger Size (s) NA

Auger/Split Spoon Refusal 30 ft

Total Depth of Borehole Is 30 ft

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number GP-3-	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Sample Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2	04		CH	0809		100%			ϕ	
3										
4										
5										
6	08		CL	0822		75%			ϕ	
7										
8										
9										
10	12		GM	0842		100%			ϕ	
11										
12										
13	GW-3-T		—	0902		NA			NA	Groundwater sample collected @12'-16'. GW-3-T GW-3-TPH
14	GW-3-TPH									
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

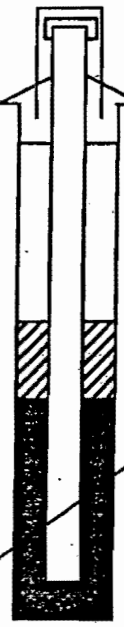
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole Diameter _____ inches

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

GP-3

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1	clay, gray, soft, some black gravel, Fe stains	☒	●	○
2	↓	○	○	○
3	↓	○	○	○
4	↓	○	○	○
5	clay, gray; w/ silt, sand & gravel; Fe stains	☒	●	○
6	↓	○	○	○
7	↓	○	○	○
8	↓	○	○	○
9	~~silt~~ gravel w/ silt, sand & clay, tan to gray	○	●	○
10	↓	○	○	○
11	↓	○	○	○
12	↓	○	○	○
13	(groundwater sample was tan)	○	○	●
14	↓	○	○	○
15	↓	○	○	○

Depth(feet)	GP-3- Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Sample Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Corr
16											
17			ML w/ clay & gravel		0937		75%			Ø	
18	20										
19											
20											
21					1025		100%			Ø	
22	24		SM								
23											
24											
25					1102		100%				
26	28		SM								
27											
28											
29	32		ML								
30											
31			BOTTOM OF HOLE								Refus @ 30
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	○	○
17	Sandy silt w/ tan clayey mud & gravel	○	○	●
18		○	○	○
19		○	○	○
20	as above, w/ red oxide @ base.	○	○	○
21	silty sand w/ tan clay mud & gravel	○	○	●
22		○	○	○
23		○	○	○
24		○	○	○
25	silty sand w/ tan clay, gravel & Fe oxide material;	○	○	○
26	~~poorly~~ well graded	○	○	○
27		○	○	○
28	as above, w/ increasing clay content & Fe oxides.	○	○	○
29	sandy silt, gray to tan w/ gravel & clay, dry,	●	○	○
30	rock appears weathered or altered w/ Fe oxide material.	○	○	○
31	- Refusal @ 30ft	○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36		○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40		○	○	○
41		○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45		○	○	○

Borehole Record for GP-3 (GPA-3)

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR GP-3

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished

Drilling Company ~~Lockheed Martin ESAI~~ Geotech

Driller's Name Joel

Geologist's Name J. Fowlow

Geologist's Signature

Rig Type (s) ~~Geoprobe~~ Mobile

Drilling Method (s) ~~direct push~~ HSA

Bit Size (s) 2 in. Auger Size (s) NA

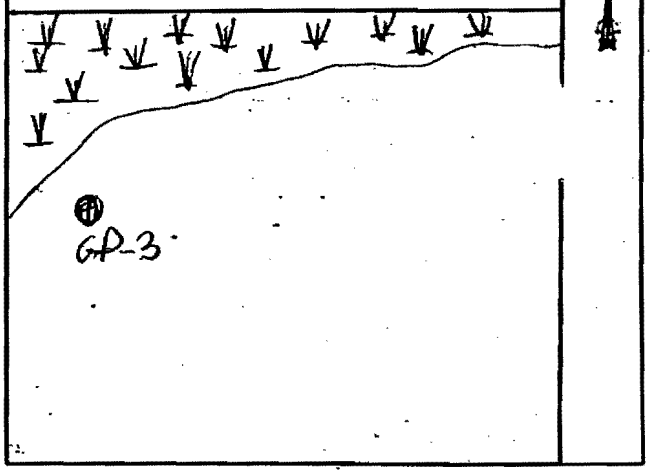
Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										

SCREENED WELL

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

Stick-up _____ ft

GROUND SURFACE

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
		○	○	○
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28	GP-3	27/34/52	T/10/60/30		0800		1.5		SW-SM		
29	-30	4		▽?							
30	GP-3	29/50/-	"		0813		1.5				
31	-32										
32	GP-3	28/32/35	"		0817		1.5				
33	-34										
34	GP-3	21/19/17	T/10/70/20		0830		1.5				
35	-36										
36	GP-3	21/25/38	"		0841		1.5				
37	-38										
38	GP-3	24/29/31	"		0849		1.6				
39	-40										
40	GP-3	17/24/32	"		0855		1.5				
41	-42										
42	GP-3	16/18/25	T/5/70/25		0905		1.5		SW		
43	-44				0915 GROUNDWATER						
44	GP-3	30/33/34	T/10/70/20		0925						
45	-46										

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		O	O	O
17		O	O	O
18		O	O	O
19		O	O	O
20		O	O	O
21		O	O	O
22		O	O	O
23		O	O	O
24		O	O	O
25		O	O	O
26		O	O	O
27		O	O	O
28	WELL GRADED SAND WITH SILT AND GRAVEL,	O	O	O
29	DRY, FINE TO COARSE, SUBANGULAR, VERY DENSE, MODERATE BROWN 5YR 4/4, WITH ROUNDED	O	O	O
30	FINE TO COARSE GRAVEL & SILT.	O	O	O
31	(PRESENCE OF COBBLES)	O	O	O
32	(PRESENCE OF COBBLES)	O	O	O
33		O	O	O
34	(INCREASING SAND) MOIST	O	O	O
35		O	O	O
36		O	O	O
37		O	O	O
38		O	O	O
39		O	O	O
40		O	O	O
41		O	O	O
42	WELL GRADED SAND WITH GRAVEL, MOIST, FINE TO V.	O	O	O
43	COARSE, DENSE, LT BROWN 5YR 5/6, SUBANGULAR WITH ROUNDED FINE TO COARSE GRAVEL.	O	O	O
44	WELL GRADED SAND WITH SILT & GRAVEL, MOIST, FINE TO	O	O	O
45	~~V. COARSE, V. DENSE, WITH ROUNDED FINE TO COARSE~~ GRAVEL.			

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
									SW-SM		
46											
47	GP-3 -A8	21/21/14	10/60/10/-		0935		1.5		ML		
48											
49			TD: 46' @		0945						
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46		O	O	O
47	SILT, MED. GREY, LEAN, HARD, DRY, WITH MOTTLED OXIDATION STAINING	O	O	O
48		O	O	O
49		O	O	O
50		O	O	O
51		O	O	O
52		O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75				

Borehole Record for GP-4

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR GP-4

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished 6/21/00

Drilling Company Lockheed Martin-ESAT

Driller's Name Woody Campbell

Geologist's Name Reed Lyday

Geologist's Signature

Rig Type (s) Geoprobe

Drilling Method (s) direct push

Bit Size (s) 2-in. Auger Size (s) NA

Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Sample Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2	04		CL	1422		30%			Ø	
3										
4										
5										
6	08		SC	1430		100%			Ø	
7										
8										
9										~15ppm above b.g. @ 9'-10'
10	12		SM	1444		100%			15	
11										
12										
13										PID detection @12'-15'
14	16		SM	1456		100%			10	
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

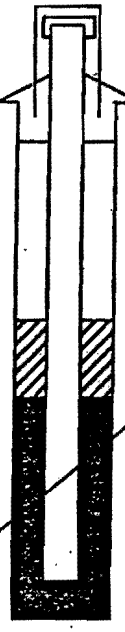
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole Diameter _____ inches

Cement/Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION GP-4	Moisture Content: Dry	Moist	Wet
1	gravel fill	○	●	○
2		○	○	○
3		○	○	○
4	silty clay, soft, brown	○	○	○
5	clayey sand, brown to tan, loose, Fe stains	○	●	○
6		○	○	○
7		○	○	○
8		○	○	○
9	silty sand, brown,	○	●	○
10		○	○	○
11		○	○	○
12		○	○	○
13	silty sand, brown to tan w/ much gravel, loose	○	○	●
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Sample ~~Penetration~~ Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
16											
17			ML w/ clay and								
18	20		+ gravel		1554		100%			Ø	
19											
20											
21							50%				
22	24		ML + gravel		1622					Ø	
23											
24											
25											
26	28		SM + gravel		1647		100%			Ø	
27											
28											
29	32	9/12/18	SM + gravel		~~7:40~~ 17:40 ~~7:40~~						
30	~~32~~		~~SM~~ + gravel				100%			Ø	
31	36	9/14/23	SC + gravel	SW	1813 ~~1439~~						
32											
33		BOTTOM OF HOLE 15/22/30	Refusal @ 32 for		~~1812~~ 1142						
34	GP-4 -36	16/50/51	T/10/60/30		1150		1.5'		SW-SM		
35											
36	GP-4 -38	13/15/20	T/5/20/5		1157				SW		
37											
38	GP-4 -40	30/21/50	T/5/60/35		1208						
39											
40	GP-4 -42	21/28/33	"		1212						
41											
42	GP-4 -44	21/30/46	"		1221						
43											
44	GP-4 -46	21/41/50	"		1227						
45											

Resume Borehole 1-27-00 w/ HSA

GP-4 -30

GP-4 -32

GP-4 -34

1235 end of sample

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16				
17	Sandy silt, tan w/ clayey mud and ~~poorly graded~~ well graded gravel, loose			●
18				
19				
20				
21	as above			●
22				
23				
24	clayey sand w/ gravel (~~poorly graded~~ well graded)		●	
25	silty sand, red-brown w/ well graded gravel			
26				
27				
28				
29	as above — WELL GRADED SAND W/ SILT & GRAVEL			●
30				
31	clayey sand, brown-red, w/ gravel (well graded)		●	
32	31-32.5 WELL GRADED SAND - WET			
33	Refusal @ 32 ft			
34				
35	WELL GRADED SAND WITH GRAVEL & SILT, MOD BROWN 5YR4/4, MOIST TO WET, FINE TO V. COARSE, V. DENSE, WITH ROUNDED FINE TO COARSE GRAVEL AND SILT THROUGHOUT AND IN LAYERS.			
36	WELL GRADED SAND, FINE TO V. COARSE, MOD BROWN 5YR4/4 MOIST TO WET, DENSE, SUBROUNDED TO SUBANGULAR, OCCAS. GRAVEL, SOME SILT THROUGHOUT.			
37				
38	WELL GRADED SAND WITH GRAVEL, MOD BROWN, MOIST FINE TO COARSE, V. DENSE, PACKED W ROUNDED FINE TO COARSE GRAVEL.			
39				
40				
41				
42	(MOIST TO WET)			
43				
44				
45				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	GP-04		INSUFF SAMPLE		1255						
47	-48										
48	GP-04	29/36			1300						
49	-50	50/11							CL		
50	GP-04		55/40/5/-		1320				CL		
51	-52										
52											
53			TOTAL DEPTH: 50'								
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46		O	O	O
47		O	O	O
48		O	O	O
49	LEAN CLAY, HARD, MED. DARK GREY, MINOR AMT OF OXIDATION STAINING, LOW PLASTICITY, WITH SILT.	O	O	O
50		O	O	O
51		O	O	O
52		O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75				

Borehole Record for ~~GP-5~~ AB-1

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR _____

Project Name: Hamilton/Labrea

Site Location: Chehalis, WA

Date Started/Finished: 6-26-00

Drilling Company: Lockheed Martin-ESAT GEOTECH

Driller's Name: JOEL

Geologist's Name: J. FOWLOW

Geologist's Signature: [signature]

Rig Type (s): ~~Geoprobe~~ MOBILE

Drilling Method (s): direct push

Bit Size (s): 2-1'n Auger Size (s): NA

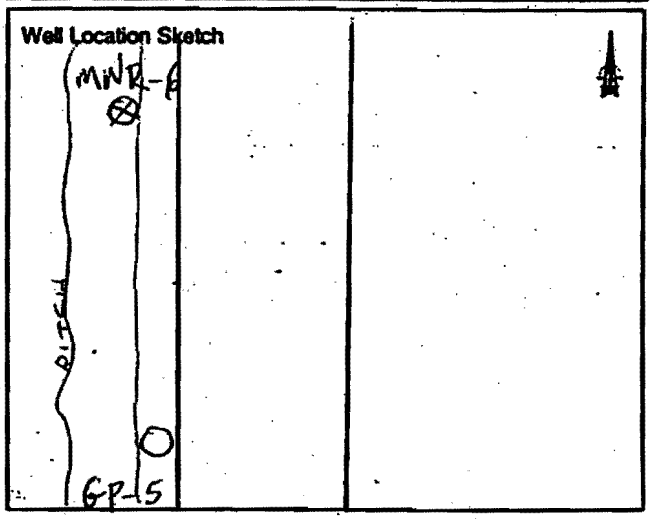
Auger/Split Spoon Refusal: _____

Total Depth of Borehole Is: _____

Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2	GP-5-4	1 1	40/30/20/10	1220		1.5		CL		
3		2								
4	GP-5-6	2/2/1	40/30/20/10	1225		1.5		CL		
5										
6	GP-5-8		40/30/20/10	1230		1.5		CL		
7										
8	GP-5-10	4/8/11	T/20/30/50	1240		1.5		GM		
9										
10	GP-5-12	10/11/16	T/20/70/10	1245		1.5		SM		
11										
12	GP-5-14	9/11/14		1252		1.5				
13										
14	GP-5-16	9/11/11		1300		1.5		GM		

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

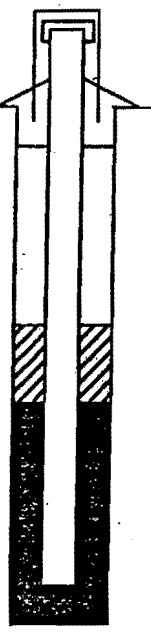
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3	FAT CLAY WITH SAND, ORGANIC, PLASTIC, 5 YR 6/4 LIGHT BROWN, MOIST, WITH FINE GRAVEL	○	○	○
4		○	○	○
5		○	○	○
6		○	○	○
7		○	○	○
8	SILTY GRAVEL WITH SAND, ROUNDED, FINE TO	○	○	○
9	COARSE (20-30 mm), 5YR 5/6 LT. BROWN, DRY,	○	○	○
10	MED. DENSE.	○	○	○
11		○	○	○
12	SILTY SAND, FINE TO COARSE, MOIST TO WET, MED. DENSE, ANGULAR, WITH SILT & ROUNDED, FINE	○	○	○
13	GRAVEL	○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
16	GP-5 -18	9/9/11			1305		1.5				
17			T/10/80/10		320 GWater				SW-SM		
18	GP-5 -20	9/11/14									
19			T/5/10/85		1325				GW		
20	GP-5 -22	11/16/21	"		1330						
21											
22	GP-5 -24	7/13/14	"		1335				GW		
23											
24	GP-5 -26	7/11/14	T/5/20/75	▽	1349				GW		
25											
26	GP-5 -28	12/15/15		?	1354						
27			T/10/50/40								
28	GP-5 -30	14/34/35	T/10/50/40		1356				SW-SM		
29											
30	GP-5 -32	15/25/26	"		1402						
31											
32	GP-5 -34	10/10/14	T/5/35/60		1404						
33											
34	GP-5 -X		SAMPLER BROKE						GW		
35											
36	GP-5 -36	20/19 50/19	T/5/60/35		1430						
37											
38	GP-5 -40	11/20/34	T/5/75/20		1455				SW		
39											
40	GP-5 -42	11/60/28	T/5/75/20		1500						
41					GROUNDWATER SAMPLE						
42	GP-5 -44	4/12/28	T/5/25/5		1524				SP		
43											
44	GP-5 -46	21/42/50	T/5/65/30		1530				SW		
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		O	O	O
17	WELL GRADED SAND WITH SILT, FINE TO VERY COARSE, SUB ANGULAR, 5YR 3/4 MODERATE BROWN, MOIST TO WET?, WITH FINE, ROUNDED GRAVEL AND SILT.	O	O	O
18		O	O	O
19	WELL GRADED GRAVEL, FINE TO COARSE, SUBANGULAR TO ROUNDED, 5YR 4/4 MODERATE BROWN, V. DENSE, WET, WITH ANGULAR SAND, & SILT.	O	O	O
20		O	O	O
21		O	O	O
22		O	O	O
23		O	O	O
24	(INCREASING SAND PERCENTAGE; PRESENCE OF WEATHED, OXIDIZED GRAVEL/CONGLOMERATE; BREAKS EASILY)	O	O	O
25		O	O	O
26	WELL GRADED SAND W/ SILT AND GRAVEL, DRY, FINE TO COARSE, VERY DENSE, 5YR 4/4 MODERATE BROWN, WITH ROUNDED AND BROKEN FINE TO COARSE GRAVEL	O	O	O
27		O	O	O
28		O	O	O
29		O	O	O
30		O	O	O
31		O	O	O
32	WELL GRADED GRAVEL WITH SAND, WET, FINE TO COARSE, ROUNDED, MEDIUM DENSE, WITH FINE TO COARSE SAND AND SILT	O	O	O
33		O	O	O
34		O	O	O
35		O	O	O
36	WELL GRADED ~~SAND~~ GRAVEL WITH ~~SILT AND~~ (IF) GRAVEL, DRY TO MOIST, VERY DENSE, FINE TO COARSE, 5 YR 5/2 PALE BROWN, WITH ROUNDED GRAVEL FINE TO COARSE.	O	O	O
37		O	O	O
38		O	O	O
39		O	O	O
40		O	O	O
41	POORLY GRADED SAND, VERY COARSE SUB ROUNDED TO ROUNDED, FINING UPWARD, 5YR 3/4 MODERATE BROWN, WET, ~~DENSE~~ (LOOSE).	O	O	O
42		O	O	O
43	WELL GRADED SAND WITH GRAVEL, FINE TO MED. V. DENSE, MOIST	O	O	O
44		O	O	O
45				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	GP-5 -18	14/17/26	10/00/10/-		1540		1.5		ML		
47											
48			TD: 47.5'								
49											
50											
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	SILT, MED. GREY, LEAN, HARD, WITH OXIDATION			
47	STAINING IN LAMINAE, DRY.			
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for AB-02

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR AB-02

Project Name HAMILTON LAGREE

Site Location CHEHALIS, WA

Date Started/Finished 6-27-00

Drilling Company GEOTECH

Driller's Name JOEL

Geologist's Name J. FONLON

Geologist's Signature

Rig Type (s) ~~HSA~~ MOBILE

Drilling Method (s) HSA

Bit Size (s) _____ Auger Size (s) _____

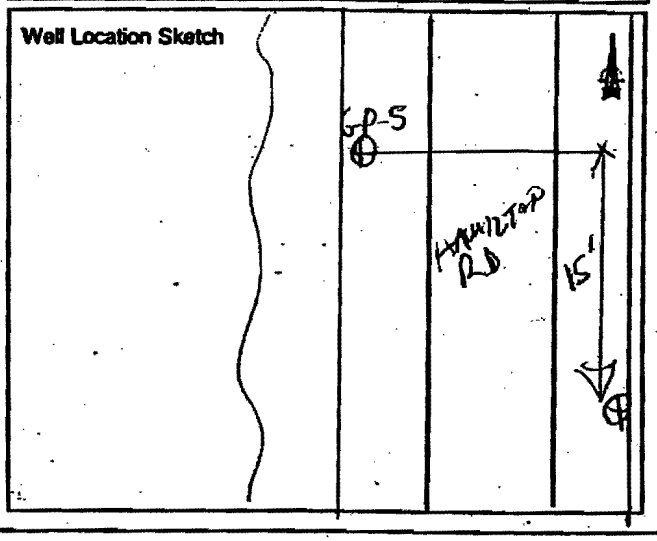
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	AB-2-6	2/3/4	10/50/10/-	1515		1.5		ML		
5										
6	AB-2-8	4/12/14	"	1540		1.5				
7										
8	AB-2-10	14/14/16	20/50/20/10	1544		1.5		ML		
9										
10	AB-2-12	10/8/12	7/10/10/20	1547				SW-SM		
11										
12	AB-2-14	7/10/8	"	1552						
13										
14	AB-2-16	6/12/18		1556						
15										

SCREENED WELL

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

Stick-up _____ ft

GROUND SURFACE

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	SILT, MEDIUM STIFF DARK GREY DOWN TO MODERATE	○	○	○
5	YELLOWISH BROWN, MODERATE PLASTICITY	○	○	○
6	DRY TO MOIST.	○	○	○
7		○	○	○
8	SANDY SILT, VERY STIFF, MODERATE BROWN, LOW PLASTICITY	○	○	○
9	DRY TO MOIST	○	○	○
10	WELL GRADED SAND WITH SILT FINE TO V. COARSE	○	○	○
11	MEDIUM DENSE LT. BROWN SYRSIG, MOIST, WITH	○	○	○
12	SUBROUNDED FINE TO COARSE GRAVEL.	○	○	○
13		○	○	○
14	INC. MOISTURE	○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
16	AB-2 -18	17/19/36	T/5/15/25		1603				SW		
17					1615 Ground water						
18	AB-2 -20	7/10/10									
19					1623						
20	AB-2 -22	6/14/10	T/5/25/75		1628				GW		
21											
22	AB-2 -24	16/29/33	T/5/60/35		1630						
23									SW		
24	AB-2 -26	12/16/17			1640						
25											
26	AB-2 -28	11/11/12	T/5/85/10		1647				SP		
27									SW		
28	AB-2 -30	21/44/45	T/5/70/25		1654						
29											
30	AB-2 -32	7/16/28	T/5/90/5		1700				SP		
31											
32	AB-2 -34	16/24/45	T/5/80/15		1705						
33											
34	AB-2 -36	8/12/16	T/5/70/25		1710				SW		
35											
36	AB-2 -38	19/50/50			1717						
37											
38	AB-2 -40	23/33/44			1722						
39											
40	AB-2 -42	21/33/38			1729						
41											
42	AB-2 -44	8/21/34	T/10/70/20		1734				SW-SM		
43											
44	AB-2 -46	9/10/12			1740						
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED SAND WITH GRAVEL, FINE TO VERY COARSE MODERATE BROWN, WET, VERY DENSE SUBANGULAR TO			
17	ROUNDED QUARTZ AND BASALT, WITH FINE TO COARSE GRAVEL.			
18				
19				
20	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, ROUNDED, WET, MEDIUM DENSE, WITH FINE TO			
21	COARSE SAND			
22	WELL GRADED SAND WITH GRAVEL, FINE TO V COARSE, MED. DENSE, WET, MOD. BROWN, WITH			
23	ROUNDED FINE TO COARSE GRAVEL			
24				
25				
26	POORLY GRADED SAND, COARSE GRAINED, MOD. BROWN, WET, MED DENSE, ROUNDED.			
27	WELL GRADED SAND WITH GRAVEL, MOIST, MOD. BROWN, VERY DENSE, FINE TO COARSE SAND			
28	AND FINE TO COARSE ROUNDED GRAVEL.			
29	POORLY GRADED SAND, COARSE, 5YR 3/4 MOD. BROWN,			
30	MOIST, DENSE, SUB ROUND TO ROUND.			
31				
32	(INCREASING GRAVEL)			
33				
34	WELL GRADED SAND WITH GRAVEL, FINE TO COARSE, MOIST, MOD. BROWN, SUB			
35	ROUNDED, MED. DENSE, WITH ROUNDED			
36	FINE TO COARSE GRAVEL.			
37				
38				
39				
41				
42				
43	WELL GRADED SAND WITH GRAVEL AND SILT, FINE TO COARSE, MOD. BROWN, MOIST, V. DENSE,			
44	SUB ROUNDED, WITH FINE TO COARSE GRAVEL AND			
45	SILT.			

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	AB-2 -48	10/4/1/38			1743 groundwater sample						
47					1800				SP-SM		
48	AB-2 -50	28/36/30	7/10/80/n								
49			10/60/30/-		1810				ML		
50											
51			TOTAL DEPTH: 48'								
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46		O	O	O
47	POORLY GRADED SAND WITH SILT, MEDIUM GRAIN,	O	O	O
48	MOIST TO WET, VERY DENSE, SUBANGULAR,	O	O	O
49	MODERATE BROWN, WITH ROUNDED FINE TO COARSE GRAVEL AND SILT.	O	O	O
50	SANDY SILT, MODERATE REDDISH BROWN, HARD, DRY,	O	O	O
51	NO PLASTICITY, IRON OXIDE MOTTLING.	O	O	O
52		O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75		O	O	O

Borehole Record for AB-3

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-3

Project Name HAMILTON LABRE

Site Location CHEHALIS, WA

Date Started/Finished

Drilling Company GEOTECH

Driller's Name JOEL

Geologist's Name J. POWLOW

Geologist's Signature [signature]

Rig Type (s) MOBILE

Drilling Method (s) HSA

Bit Size (s) _____ Auger Size (s) 4"

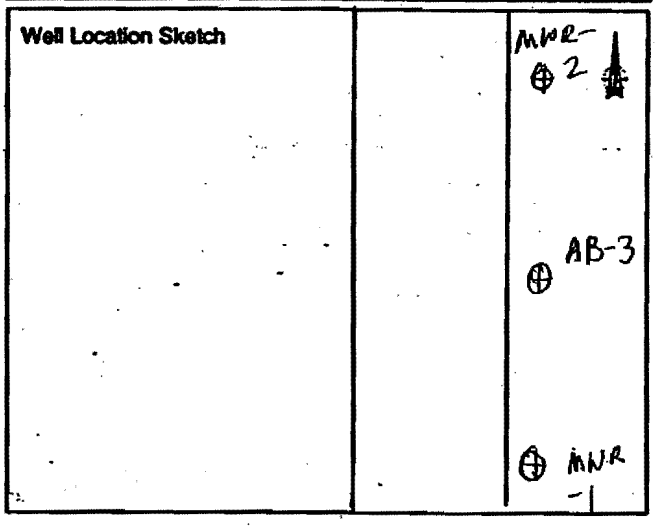
Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	AB-3-6	3/2/3	50/35/15/-	0752		1.5		CL		
5										
6	AB-3-8	1/3/5	~~30/50/20/-~~	0755		1.5				
7								ML		
8	AB-3-10	1/1/3	~~30/50/20/-~~	0757		1.5				
9										
10	AB-3-12	3/3/3	15/60/20/5	0800		1.5		ML		
11										
12	AB-3-14	5/10/14	~~30/45/15~~	0811		1.5				
13										
14	AB-3-16	7/12/13	5/15/60/35	0816		1.5		SW-SM		
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	CLAY, GREYISH BLACK, STIFF, SL. PLASTIC, ROOT MATERIAL	○	○	○
5		○	○	○
6		○	○	○
7	LEAN CLAY WITH SAND, MOD. BROWN, MOTTLED, DRY, V. LOW PLASTICITY, MEDIUM STIFF, W/ V. FINE	○	○	○
8	SAND	○	○	○
9		○	○	○
10	SILT W/SAND, SOFT, MOD. BROWN, LOW PLASTICITY, MOIST, MOTTLING W/ OXIDATION STAINS, W/FINE	○	○	○
11	SAND & MINOR GRAVEL.	○	○	○
12		○	○	○
13	WELL GRADED SAND WITH SILT AND GRAVEL, FINE			
14	TO V. COARSE, DRY TO MOIST, ROUNDED, MOD. BROWN, MED DENSE, W/ ROUNDED FINE GRAVEL, SILT.	○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Com
16	AB-3 -18	11/17/11	T/5/15/80		0822		1.5		GW		
17											
18	AB-3 -20	7/6/5	T/5/10/55		0826		1.5		GW		
19					0840 WATER SAMPLE						
20	AB-3 -22	7/11/10	T/5/30/65		0847		1.5		GW		
21											
22	AB-3 -24	11/21/42	T/5/20/65		0851		1.0		GW		
23											
24	AB-3 -26	14/22/22	T/5/30/65		0857		1.0		GW		
25											
26	AB-3 -28	19/26/29	T/5/30/65		0902		1.5		GW		
27											
28	AB-3 -30	8/15/22	T/5/55/40		0906		1.5		SW		
29											
30	AB-3 -32	22/29/20	T/5/65/30		0911		1.5		SW		
31											
32	AB-3 -34	18/25/27	T/5/65/30		0920		1.5		SW		
33											
34	AB-3 -36	15/18/29	T/5/75/20		0924		1.5		SW		
35											
36											
37											
38	AB-3 -40	20/15/3	T/5/75/20		1215		1.0		SW		
39											
40	AB-3 -42	25/50/5	T/5/70/25		1222		1.0		SW		
41											
42	AB-3 -44	21/22/17	T/5/70/25		1227				SW		
43											
44	AB-3 -46	18/24/18	T/5/70/25		1232				SW		
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED GRAVEL, FINE TO COARSE W/ COBBLES, ANGULAR TO ROUNDED, LT. BROWN, MOIST TO WET, MED-DENSE.			
17				
18	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, ANGULAR TO ROUNDED, LT BROWN, WET, MED DENSE, WITH WELL GRADED SAND.			
19				
20				
21				
22	(DECREASE IN SAND) MOIST			
23				
24	(INCREASE IN SAND) MOIST			
25				
26				
27	WELL GRADED SAND WITH GRAVEL, FINE TO COARSE, DENSE, MOIST, MODERATE BROWN, WITH ROUNDED FINE TO COARSE GRAVEL.			
28				
29				
30				
31	<0930 DOWNHOLE HAMMER SEPARATED, RIG DOWN FOR REPAIR.>			
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45				

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	AB-3	46/	50/	T/5/60/35		1255		1.5		SW		
47	-46		51									
48	AB-3	18/	49/	T/50/20/30						ML		
49	-50	50										
50	AB-3	8/	12/	15/70/25/-								
51	-52	12			TOTAL DEPTH:			50'		MV		
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46		O	O	O
47	(INCREASING GRAVEL)	O	O	O
48	GRAVELLY SILT WITH SAND, ROUNDED FINE GRAVEL IN A BINDER OF DARK YELLOWISH ORANGE MOTTLED SILT, DRY, HARD	O	O	O
49		O	O	O
50	SILT WITH SAND, DRY, ~~HARD~~ V. STIFF, DARK GREY, WITH V. FINE SAND. WITH SAND PARTINGS.	O	O	O
51		O	O	O
52		O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75		O	O	O

Borehole Record for AB-1

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-1

Project Name HAMILTON LABREE

Site Location OHEHALIS, WA

Date Started/Finished 6-28-00

Drilling Company GEOTECH

Driller's Name JOEL

Geologist's Name J. FONLOW

Geologist's Signature [signature]

Rig Type (s) MOBILE

Drilling Method (s) HSA

Bit Size (s) _____ Auger Size (s) _____

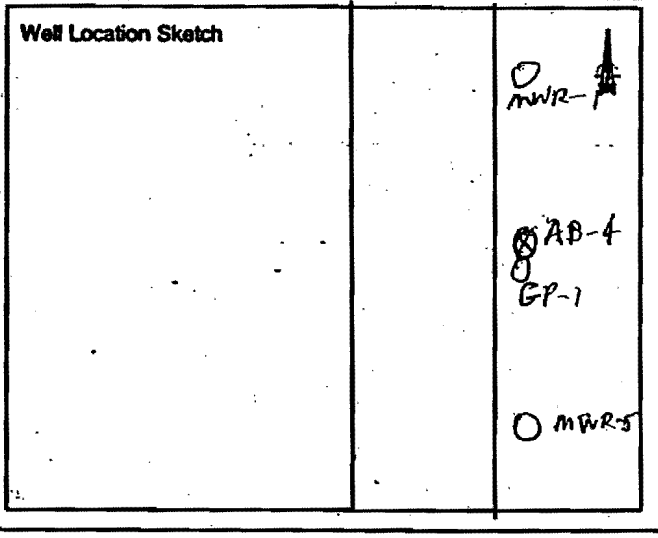
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5										
6										
7										
8	AB-04-10	5/8/8	20/60/15/5	1506				ML		
9										
10										
11	AB-04-12	6/9/9	T/5/65/30	1508				SW		
12										
13	AB-04-14	8/12/12	T/5/40/55	1510				GW		
14										
15	AB-04-16	11/11/16	T/5/60/35	1518				SW		

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

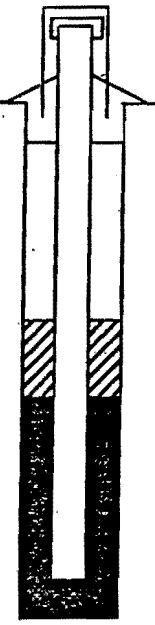
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

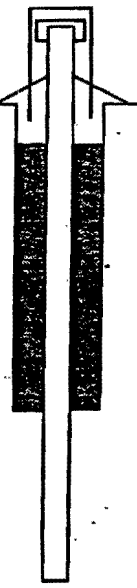
Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL



Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6		○	○	○
7		○	○	○
8	SILT WITH SAND, STIFF, MEDIUM GREY, MOIST, LOW	○	○	○
9	PLASTICITY, WITH ROUNDED SAND & GRAVEL	○	○	○
10	WELL GRADED SAND WITH GRAVEL, MOIST, MED. DENSE,	○	○	○
11	FINE TO V. COARSE, MOD. BROWN, WITH ROUNDED FINE GRAVEL.	○	○	○
12	WELL GRADED GRAVEL WITH SAND, DRY TO MOIST, MED	○	○	○
13	DENSE, MOD. BROWN, ROUNDED TO SUB ANGULAR.	○	○	○
14	WELL GRADED SAND WITH GRAVEL, MOD. BROWN, WET FINE TO V. COARSE, ANGULAR TO ROUNDED	○	○	○
15	MEDIUM DENSE, WITH ROUNDED FINE TO COARSE GRAVEL	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16	AB-4 -18	16/14/15	T/5/20/75		1534				GW		
17											
18	AB-4 -20	10/17/20	T/5/75/20		1537				SP		
19											
20	AB-4 -22	13/22/20	T/5/60/35		1542				SW		
21											
22	AB-4 -24	13/14/18	T/5/20/75		1547						
23											
24	AB-4 -26	12/35/39	T/5/25/70		1552				GW		
25											
26	AB-4 -28	14/18/17	T/5/70/25		1556						
27											
28	AB-4 -30	8/14/17	T/5/75/20		1600				SW		
29											
30	AB-4 -32	9/14/23	T/5/85/10		1605						
31											
32	AB-4 -34	12/17/19	T/5/85/10		1612				SP		
33											
34	AB-4 -36	12/22/50/3	T/5/85/10		1617						
35											
36	AB-4 -38	26/37/50	T/5/60/35		1632						
37											
38	AB-4 -40	36/50/7/5	T/5/60/35		1637						
39											
40	AB-4 -42	12/40/28	5/60/35		1643				SW		
41											
42	AB-4 -44	28/39/40	5/65/30		1648						
43											
44	AB-4 -46	12/25/50/5"	T/5/65/30		1655 / 1700 grounded						
45											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, SUBROUNDED, MOIST TO WET, MOD BROWN,	O	O	O
17		O	O	O
18		O	O	O
19	POORLY GRADED SAND WITH GRAVEL, COARSE, MOD. BROWN, MOIST, DENSE, ROUNDED, WITH ROUNDED FINE GRAVEL	O	O	O
20		O	O	O
21	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE MOD BROWN, MOIST, DENSE	O	O	O
22	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOD BROWN, MOIST, DENSE, WITH COARSE SAND, SAND & GRAVEL ROUNDED TO ANGULAR.	O	O	O
23		O	O	O
24		O	O	O
25		O	O	O
26		O	O	O
27	WELL GRADED SAND WITH GRAVEL, FINE TO VERY COARSE, MOD. BROWN, MOIST, DENSE, ROUNDED TO ANGULAR WITH FINE TO COARSE, ROUNDED GRAVEL.	O	O	O
28		O	O	O
29		O	O	O
30	POORLY GRADED SAND, COARSE, SUBANGULAR TO SUBROUNDED, MOD. BROWN, MOIST, DENSE WITH FINE ROUNDED GRAVEL.	O	O	O
31		O	O	O
32		O	O	O
33		O	O	O
34		O	O	O
35		O	O	O
36		O	O	O
37	WELL GRADED SAND WITH GRAVEL, FINE TO COARSE, MOD. BROWN, MOIST, SUBROUNDED, VERY DENSE, WITH ROUNDED, FINE TO COARSE GRAVEL	O	O	O
38		O	O	O
39		O	O	O
40		O	O	O
41		O	O	O
42		O	O	O
43		O	O	O
44		O	O	O
45		O	O	O

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	AB-A	17	5			1714						
47	-48											
48	AB-1	49	50/2	7/5/30/65		1720				GW		
49	-50											
50	AB-1	12	11/13	30/50/20/-		1727				ML		
51	-52											
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46	SAMPLER SET ON A COBBLE—INSUFFICIENT SAMPLE FOR SAMPLING — SAMPLE EXTRACTED WAS PROBABLY SLOUGH			
47				
48	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, VERY DENSE, MOD. BROWN, MOIST, ROUNDED TO ANGULAR, WITH FINE TO COARSE SAND.			
49				
50	SILT, WITH SAND, VERY STIFF, MED. GREY, DRY, LOW PLASTICITY, WITH V. FINE SAND.			
51				
52				
53				
54				
55				
56				
57				
58				
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74				
75				

Borehole Record for AB-5

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-5

Project Name: HAMILTON LABREE

Site Location: CHEHALIS

Date Started/Finished: 6-29-00

Drilling Company: GEOTECH

Driller's Name: JOEL WELSH

Geologist's Name: J. FOWLER

Geologist's Signature: [signature]

Rig Type (s): MOBILE B-50

Drilling Method (s): HSA

Bit Size (s) _____ Auger Size (s) _____

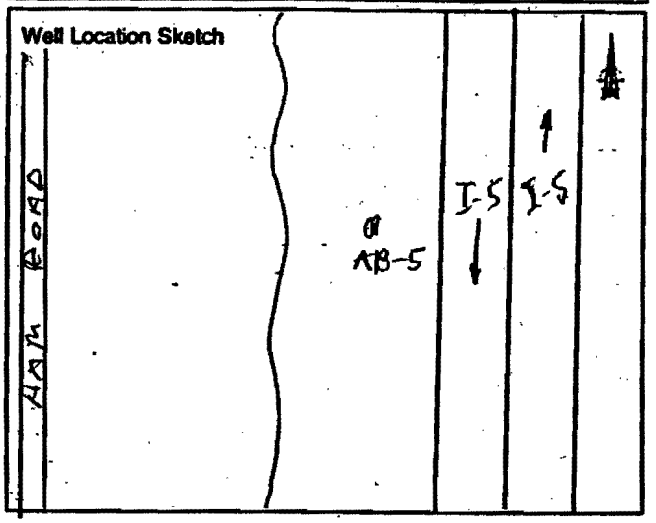
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	AB-5 -6	2 1	50/30/20/-	0810		1.5		CL		
5		2								
6	AB-5 -8	2/5/7	50/30/20/-	0813		1.5				
7										
8	AB-5 -10	2/5/7	50/30/20/-	0817		1.5				
9										
10	AB-5 -12	5/6/5	50/40/10/-	0820		1.5				
11										
12	AB-5 -14	2/3/4	30/60/10/-	0823		1.5		ML		
13										
14	AB-5 -16	7/12/18	75/5/20/55	0827		1.5		~~MW~~ GW		
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

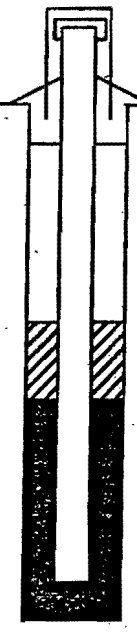
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	LEAN CLAY WITH SAND, GREYISH BROWN TO LT. BROWN,	○	○	○
5	MOIST, STIFF, WITH ROOT CASTS, MOTTLING.	○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9	COLOR CHANGE TO MEDIUM GREY	○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	SILT, MEDIUM STIFF, MOIST TO DRY, MED YELLOWISH BROWN, OXIDATION MOTTLING	○	○	○
14		○	○	○
15	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOIST, MEDIUM DENSE, LIGHT BROWN, ROUNDED, WITH FINE TO V. COARSE SAND, AND COBBLES.	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16	AB-5	14/20/32	T/5/35/60	▽	0836		1.0				
17	-18				0841 water						
18	AB-5	18 18	T/5/20/75		0839		1.0				
19	-20	13									
20	AB-5	14 16	T/5/20/75		0903		1.0				
21	-22	17									
22	AB-5	14 24	T/5/20/75		0910		1.0				
23	-24	50									
24	AB-5	14 16	—	▽	0915		NA				
25	-26	29									
26	AB-5	11 34	T/5/10/85		0920		0.5				
27	-28	15/3									
28	AB-5	4 17	T/5/20/75		0925		1.5				
29	-30	28							GW		
30	AB-5	11/20/20	T/5/20/75		0930		1.5				
31	-32										
32	AB-5	11/28/38	T/5/20/75		0939		1.5				
33	-34										
34	AB-5	11/24/28	T/5/20/75		0944		1.5				
35	-36										
36	AB-5	15/27/3	T/5/15/80		0951		1.0				
37	-38										
38	AB-5	37/40/	T/5/15/80		0956		0.5				
39	-40	50/3									
40	AB-5	27/34/	T/5/15/80		1001		1.0				
41	+2	44									
42	AB-5	21/23/20	T/5/20/75		1007		1.0				
43	-44										
44	AB-5	11/38/47	T/5/25/70		1011		1.5				
45	-46										
					1025 water						

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
		O	O	O
16	(INCREASE MOISTURE TO WET)	O	O	O
17		O	O	O
18	(INCREASING GRAVEL %)	O	O	O
19		O	O	O
20		O	O	O
21		O	O	O
22		O	O	O
23	RECOVERED ONLY SLOUGH(?) & LARGE COBBLE	O	O	O
24	WATER IN SAMPLER WAS VERY SILTY	O	O	O
25		O	O	O
26	(INCREASING GRAVEL %)	O	O	O
27		O	O	O
28	(DECREASING GRAVEL %)	O	O	O
29		O	O	O
30		O	O	O
31		O	O	O
32		O	O	O
33		O	O	O
34		O	O	O
35		O	O	O
36		O	O	O
37	POOR RECOVERY — SAMPLE MAY BE	O	O	O
38	PREDOMINANTLY SLOUGH	O	O	O
39		O	O	O
40		O	O	O
41		O	O	O
42		O	O	O
43	(DECREASING GRAVEL %)	O	O	O
44		O	O	O
45		O	O	O

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	AB-5 -48	17	15/2	T/5/60/35		1040				SW		
47												
48	AB-5 -50	90	50/2	T/25/50/25		1047					POSSIBLE SLOUGH	
49				15/45/30/20					?	MH	?	
50	AB-5 -52	9/1	15	50/30/20/-		1055				CL		
51												
52				TOTAL DEPTH: 52'								
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46		O	O	O
47	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, WET, V. DENSE, SUBROUNDED, MODERATE BROWN, WITH FINE TO COARSE GRAVEL	O	O	O
48		O	O	O
49	GREYISH LEAN CLAY WITH SAND, BLACK, VERY STIFF, DRY, WITH ROOT CASTS, FINE SAND, V LOW PLASTICITY.	O	O	O
50		O	O	O
51		O	O	O
52		O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75		O	O	O

Borehole Record for AB-6

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-6

Project Name: HAMILTON LABREE

Site Location: CHEHALIS, WA

Date Started/Finished: 6-29-00

Drilling Company: GEOTECH

Driller's Name: JOEL WELSH

Geologist's Name: L. FOWLOW

Geologist's Signature: [signature]

Rig Type (s): MOBILE B-59

Drilling Method (s): HSA

Bit Size (s) _____ Auger Size (s) _____

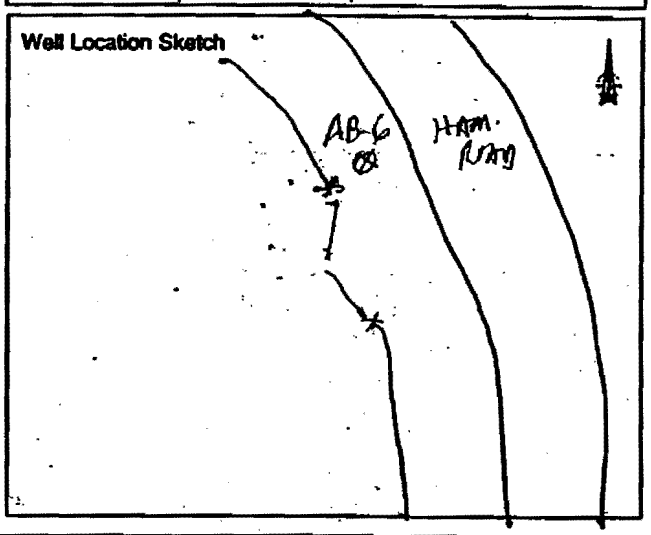
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	AB-6 -6	3/6/9	30/40/20/10	14 10		1.5		ML		
5										
6	AB-6 -8	8/9/12	-/5/70/25	14-12		1.5		SW		
7										
8	AB-6 -10	6/8/11	-/15/55/30	14 17		1.5		SM		
9										
10	AB-6 -12	15/29/27	T/5/30/65	14 17		1.0		GW		
11										
12	AB-6 -14	33/50/3	T/5/4/55	14 22		1.0				
13										
14	AB-6 -16	17/50/8	T/5/30/65	1430		1.0				V. HARD DRILLING
15										

SCREENED WELL

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

Stick-up _____ ft

GROUND SURFACE

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	SANDY ~~CLAY~~ SILT WITH GRAVEL, MOD. YELLOWISH BROWN, MOIST, LOW PLASTICITY, ~~STIFF~~, WITH W.G. SAND AND GRAVEL	○	○	○
5		○	○	○
6	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, SUBROUNDED TO SUB ANGULAR, MOIST, MED DENSE, MOD BROWN, WITH ROUNDED GRAVEL & COBBLE.	○	○	○
7		○	○	○
8		○	○	○
9	SILTY SAND WITH GRAVEL, FINE TO V. COARSE, DRY, MOD BROWN, MED. DENSE, WITH ROUNDED GRAVEL AND COBBLES.	○	○	○
10		○	○	○
11	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, DRY TO MOIST, V. DENSE, MOD BROWN, ROUNDED TO SUBROUNDED WITH FINE TO V. COARSE SAND	○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Com
16	AB-6	17/29/35	T/5/65/30		1440		1.0		SW		
17	-18										
18	AB-6	6/16/25	T/5/65/30		1512		1.0				
19	-20				1520 water						
20	AB-6	8/12/12	T/5/60/35				1.3				
21	-22				1525						
22	AB-6	12/50/3	T/5/55/40		1529		1.0				
23	-24										
24	AB-6	6/13/14	T/5/55/40								
25	-26				1535		1.2		SW		
26	AB-6	12/50	T/5/60/35		1541		0.8				
27	-28										
28	AB-6	50/5	TS		1545						
29	-30										
30	AB-6	29/50/5	T/5/35/60		1550		0.6				
31	-32										
32	AB-6	21/50/3	T/5/30/65		1600		0.6		GW		
33	-34										
34	AB-6	8/22/22	T/5/40/55		1604		1.2				
35	-36										
36	AB-6	23/50/3	SLOUGH		1611						
37	-38										
38	AB-6	27/50/2	T/5/70/25		1621		1.0				
39	-40										
40	AB-6	14/15/30	T/5/70/25		1627		1.5				
41	-42										
42	AB-6	16/17/21	T/5/70/25		1630		1.0		SW		
43	-44										
44	AB-6	7/21/31	T/5/70/25		1640		1.0				
45	-46				1645 water						

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
16	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE,			
17	V. DENSE, DRY TO MOIST, MOD. BROWN, W. ROUNDED			
18	(LOST TEETH FROM THE CUTTING HEAD) GRAVEL			
19	(SAMPLE WET)			
20				
21				
22				
23				
24				
25				
26				
27				
28	INSUFF SAMPLE			
29				
30	INSUFFSAMPLE 1 - JAR TO PASP			
31	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE,			
32	MOD. BROWN, VERY DENSE, WET, ROUNDED TO SUB ANGULAR, WITH W.G. SAND.			
33	INSUFF SAMPLE 1 JAR TO PAST			
34				
35				
36				
37				
38	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE,			
39	WET, V. DENSE, SUBROUNDED TO SUB ANGULAR,			
40	MOD. BROWN, WITH WG FINE GRAVEL.			
41	(SAMPLE MOIST)			
42				
43				
44				
45				

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	AB-6 -48	10	3	7/5/74/5		1705		1.5		SP		
47												
48	AB-6 -50	10/15	21	60/30/10/-		1710		1.5		CL		
49												
50												
51				TOTAL DEPTH:			50'					
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	POORLY GRADED SAND, VDENSE, WET. MEDIUM TO COARSE, MEDIUM GREY.			
47				
48	LEAN CLAY, DARK GREY, DRY, HARD, WITH ROOT CASTS.			
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for AB-7

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-7

Project Name Hamilton/Labree

Site Location

Date Started/Finished

Drilling Company Lockheed Martin-ESAT

Driller's Name Woody Campbell

Geologist's Name Reed Lyday

Geologist's Signature

Rig Type (s) Geoprobe

Drilling Method (s) direct push

Bit Size (s) 2-in Auger Size (s) NA

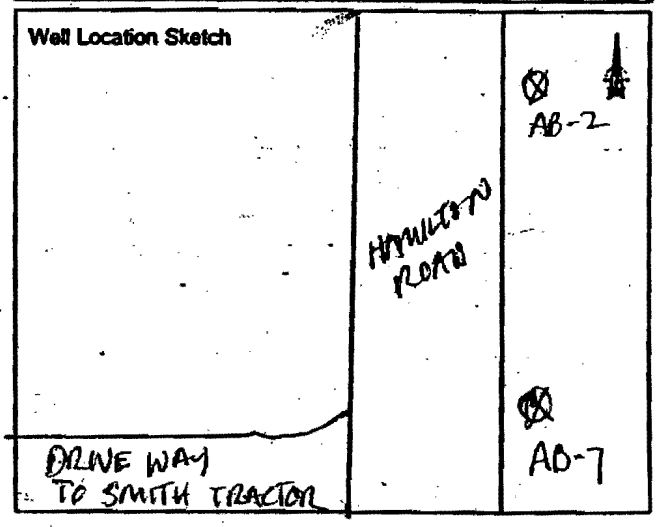
Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	AB-7 -6	2/2/6	30/50/24/- 10/20/20/-	0930		1.5		SM		
5										
6	AB-7 -8	3/2/1	T/5/10/55	0935		1.5				
7										
8	AB-7 -10	5/8/11	T/5/4/55	0937		1.0		GW		
9										
10	AB-7 -12	14/14/28	T/5/10/55	0939		1.0				
11										
12	AB-7 -14	8/18/23	T/10/30/60	0943		1.5		GM-GW		
13										
14	AB-7 -16	4/21/16		0950		1.0		GW		
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

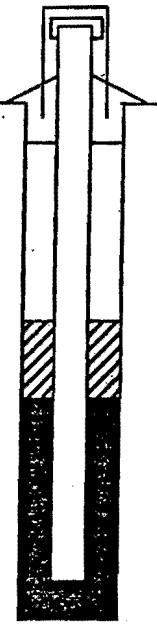
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

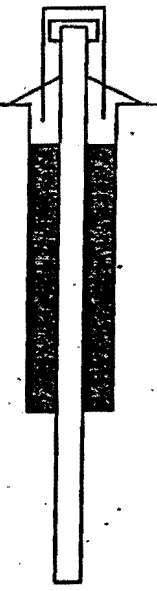
Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL



Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	SILTY SAND WITH CLAY, FINE, MOD. BROWN, MED. STIFF W/ OXIDATION MOTTLING AND ROOTS.	○	○	○
6		○	○	○
7	WELL GRADED GRAVEL AND SAND, FINE TO COARSE, MEDIUM DENSE, DRY TO MOIST, SUBROUNDED, MOD. BROWN, WITH SILT LENSES (1/8 IN) AND WG SAND.	○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	WELL GRADED GRAVEL WITH SILT AND SAND, FINE TO COARSE, DENSE, MOD. BROWN, MOIST, SUBROUNDED, WITH WG SAND, AND SILT.	○	○	○
14		○	○	○
15	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, DENSE MED. BROWN, WET, SUBANGULAR, WITH WG SAND.	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
				15'							
16–17	AB-1 -18	24/50/4	T/S/30/65		1000 / 1005 WATER		1.0				
18–19	AB-1 -20	9/19/17	T/S/10/55		1013		1.2				
20–21 (FASP ONLY)	AB-1 -22	10/26/20	T/S/30/65		1017		1.0				
22–23	AB-1 -24	11/12/17	T/S/10/85		1023		1.2				
24–25	AB-1 -26	11/15/35	T/S/10/85		1025		1.1				
26–27	AB-1 -28	9/11/17	T/S/25/70		1030		1.0				
28–29 (FASP ONLY)	AB-1 -30	30/50/2	T/S/10/85		1036		0.5		GW		
30–31	AB-1 -32	50/50/1	INSUFFICIENT SAMPLE		1042		0.3				
32–33 (NO SAMPLE)	AB-1 -34		SLOUGH		1050		–				
34–35	AB-1 -36	14/50/1	T/S/20/75		1110		1.0				
36–37	AB-1 -38	24/50/2	T/S/20/75		1122		0.5				
38–39 (FASP ONLY)	AB-1 -40	14/38/30	T/S/10/85		1130		1.0				
40–41	AB-1 -42	29/50/5	T/S/20/75		1137		1.0				
42–43	AB-1 -44	11/27/38	T/S/20/75		1145		1.0				
44–45	AB-1 -46	4/5/20	70/20/10/–		1150				CH		

TOTAL DEPTH : 44'

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, WET SUB ANGULAR, VERY DENSE, MOD BROWN W/ OXIDATION MOTTLING, WITH WG SAND.	O	O	O
17		O	O	O
18		O	O	O
19		O	O	O
20		O	O	O
21	(INC. GRAVEL, DEC. SAND)	O	O	O
22		O	O	O
23		O	O	O
24		O	O	O
25	(INC. SAND %, DECR. GRAVEL %)	O	O	O
26		O	O	O
27	(INCR. GRAVEL %, DECR. SAND %)	O	O	O
28		O	O	O
29		O	O	O
30	<INSUFFICIENT RECOVERY>	O	O	O
31		O	O	O
32	<SLOUGH> HIGH LEVELS OF GRAVEL (ESP. 22') MAYE MADE THE AUGER STRING DEFLECT. DRILLER HAVING A HARD TIME USING HAMMER DUE TO DEFLECTION	O	O	O
33		O	O	O
34	(INCR SAND %; DECR. GRAVEL %)	O	O	O
35		O	O	O
36		O	O	O
37		O	O	O
38	(INCR. GRAVEL %; DECR SAND %)	O	O	O
39		O	O	O
40		O	O	O
41		O	O	O
42		O	O	O
43		O	O	O
44		O	O	O
45	FAT CLAY, MED LIGHT CLAY, HIGH PLASTICITY, SOFT*	O	O	O

*DISREGARD BLOW COUNT; COBBLE IN THE SAMPLER, MOIST.

Borehole Record for AB-8

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-8

Project Name HAMILTON-LABREE

Site Location CHEHALIS, WA

Date Started/Finished 6-30-00

Drilling Company GEOTECH

Driller's Name JOEL WELSH

Geologist's Name J. FONLON

Geologist's Signature [signature]

Rig Type (s) MOBILE B-59

Drilling Method (s) HSA

Bit Size (s) _____ Auger Size (s) _____

Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	X AB-8 -04	6/10/10	15/60/25/-	1728		1.5		ML		
5										
6	AB-8 -06	4/15/10	T/5/65/30	1732		1.5		SW	JP	
7										
8	X AB-8 -10	5/5/11	T/5/80/10	1736		1.5		SP		
9										
10	AB-8 -12	4/8/16	T/5/70/25	1739		1.0		GW		
11										
12	X AB-8 -14	4/14/20	T/5/20/75	1742		0.5				
13										
14	AB-8 -16	4/50/2	T/5/10/85	1747		0.3		GW		
15										

ASP ONLY

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

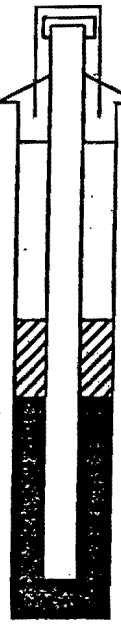
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3	SILT WITH SAND, LT BROWN, DRY, W/O XIATION NOTICING,	○	○	○
4	VERY SILT, WITH VF SAND	○	○	○
5		○	○	○
6	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, MOIST,	○	○	○
7	MEDIUM DENSE SUBROUNDED, WITH ROUNDED TO ANGULAR FINE TO COARSE GRAVEL.	○	○	○
8		○	○	○
9	POORLY GRADED SAND, MEDIUM GRAINED, DRY TO MOIST MEDIUM DENSE, SUBROUNDED, LT TO MOD BROWN.	○	○	○
10		○	○	○
11	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, MED. BROWN, SUBROUNDED, MED. DENSE, WITH	○	○	○
12	ROUNDED FINE TO COARSE GRAVEL.	○	○	○
13	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, ROUNDED			
14	DRY TO MOIST, DENSE, WITH W.G. SAND	○	○	○
15		○	○	○

		Sampler	Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)
FASP ONLY	AB-8 -18	16/21/50	T/5/15/80	15'	1755		1.0		GW	
	AB-8 -20	16/29/31	T/T/10/90		1800 1800 water		1.0			
	AB-8 -22	16/30/36	T/10/30/60	20'	1820		1.5		GW-GM?	
	AB-8 -24	14/18/29	T/5/40/55		1824		1.5			
	AB-8 -26	16/18/32	T/5/40/55		1830		1.5			
	AB-8 -28	12/21/27	T/5/40/55		1835		1.5		GW	
	AB-8 -30	16/29/13	T/5/35/60		1842		1.0			
7-1-00	AB-8 -32	17/50/3	T/5/35/60		7-1-00 0620		1.0			
	AB-8 -34	20/50/5	T/5/30/65		0627		1.0			
	AB-8 -36	12/18/32	T/5/85/10		0632		1.5		SP	
	AB-8 -38	17/50/5	T/5/40/55		0640		1.0			
	AB-8 -40	14/28/50/5	T/5/45/55		0644		1.5		GW	
	AB-8 -42	11/12/28	T/5/40/55		0651		1.5			
	AB-8 -44	17/50/5	T/5/60/35		0655		1.5		SW	
	AB-8 -46	21/50/2	T/5/35/60		0702		1.0		GW	
					0710 WATER					

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, ROUNDED, MOIST, V. DENSE, MOD BROWN, WITH WG SAND.			
17				
18				
19				
20	(INC. IN SILT %; POSSIBLE SLOUGH)			
21				
22				
23	(SAND BINDER IS POORLY GRADED, MEDIUM, DRY.)			
24				
25	(SAND BINDER IS P.G., MEDIUM, DRY)			
26				
27				
28				
29				
30				
31				
32				
33				
34	POORLY GRADED SAND, COARSE, MOIST, SUBANGULAR, DARK YELLOWISH BROWN, VERY DENSE, WITH FINE ROUNDED GRAVEL.			
35				
36	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, ROUNDED, MOIST TO WET, V. DENSE, MOD. BROWN, WITH WG SAND.			
37				
38	(GRAVEL & SAND ARE PREDOM. ANGULAR/SUBANGULAR)			
39				
40				
41				
42	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, WET, VERY DENSE, MOD. BROWN, SUBANGULAR, WITH FINE TO COARSE, ROUNDED GRAVEL.			
43				
44	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, ANGULAR TO SUB ROUNDED, WET, V. DENSE, MOD. BROWN, WITH W.G. SAND.			
45				

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
				GW						GW		
46	AD-8	6/12/12		~~20/40/10/-~~		0717		1.5		~~ML~~		
47	-16			60/30/10/-						CL		
48				TOTAL DEPTH: 16'								
49												
50												
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	SILT, OXIDIZED MOTTLING, DARK YELLOWISH ORANGE, TO LT BROWN LAMINAE, HARD, SL. PLASTICITY, WITH VF SAND.			
47				
48	LEAN CLAY, HARD, MED-DARK GREY, SL. PLASTICITY, VF SAND.			
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for AB-2

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR AB-9

Project Name HAMILTON LADREE

Site Location CHEHALIS, WA

Date Started/Finished 6-30-00

Drilling Company GEOTECH

Driller's Name JOEL WELSH

Geologist's Name J. FOWLOW

Geologist's Signature [signature]

Rig Type (s) MOBILE B-59

Drilling Method (s) HSA

Bit Size (s) _____ Auger Size (s) _____

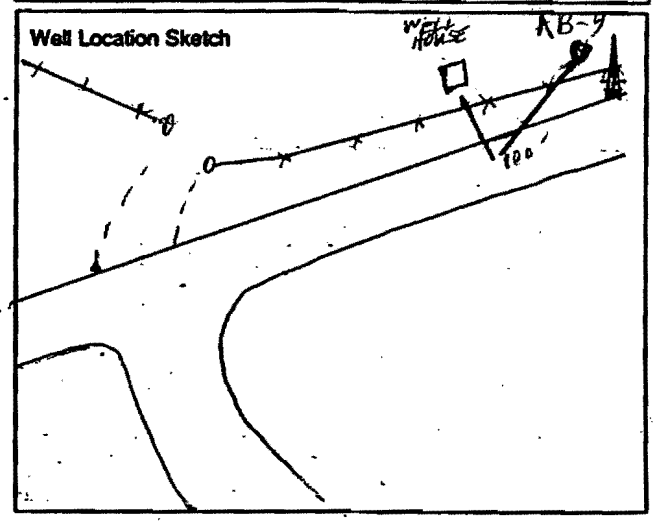
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	AB-9 -06	3/2/4	50/10/10/-	0735		1.5		CL		
5										
6	AB-9 -08	2/2/3	30/55/15/-	0736		1.5		ML		
7										
8	AB-9 -10	3/4/4	10/30/60/-	0738		1.5		SM		
9										
10	AB-9 -12	50/5		0742		0.3				INSUFF SAMPLE
11								GW?		
12	AB-9 -14	17/27/33		0749		0.2				INSUFF SAMPLE
13										
14	AB-9 -16	29/34/44		0758		0.6				
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

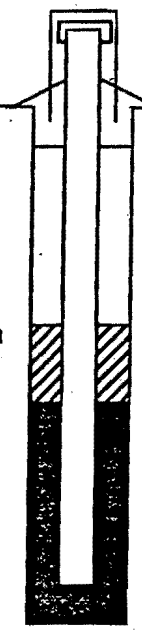
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	LEAN CLAY, DRY TO MOIST, MOTTLED, MED-STIFF, GREY TO	○	○	○
5	BROWN, MED PLASTIC.	○	○	○
6	SILT WITH SAND, MOIST, MOTTLED, MED. STIFF, BROWN,	○	○	○
7	SLIGHT PLASTICITY, WITH VF SAND.	○	○	○
8		○	○	○
9	SILTY SAND, MEDIUM GRAINED, MOIST, LOOSE, GREY,	○	○	○
10	WITH BROWN SILT PARTINGS (OCCASIONAL)	○	○	○
11	(INSUFF. SAMPLE — VERY ROCKY — COBBLES INFERRED)	○	○	○
12		○	○	○
13	(INSUFF. SAMPLE — VERY ROCKY — COBBLES IN SAMPLER)	○	○	○
14		○	○	○
15	SANDY SILT (PROB. SLOUGH) SAMPLED BECAUSE INSUFF	○	○	○
	SAMPLE PREVIOUS 2 INTERVALS)			

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
16	AB-9 -18	18/21/27	T/5/60/35	15' ▽	0806		1.5		SW		
17					0808 WATER						
18	AB-9 -20	24/24/17	T/5/60/35		0817						
19											
20	AB-9 -22	8/8/12	T/5/25/70	20' ▽	0819						
21									GW		
22	AB-9 -24	50/5			0826					SLOUGH	
23											
24	AB-9 -26	21/21/28	T/5/85/10		~~1040~~ 0930				SP		
25											
26	AB-9 -28	14/25/29	T/5/40/55		0937						
27											
28	AB-9 -30	17/24/29	T/5/30/65		0943						
29											
30	AB-9 -32	18/26/30	T/5/30/65		0948				GW		
31											
32	AB-9 -34	14/25/32	T/5/35/60		0954						
33											
34	AB-9 -36	14/25/26			0957						
35			T/5/90/5						SP		
36	AB-9 -38	14/15/50/5	T/5/35/60		1007						
37									GW		
38	AB-9 -40	14/24/24	T/5/55/40		1013						
39											
40	AB-9 -42	8/17/28	T/T/15/85		1017				SW		
41									GW		
42	AB-9 -44	13/14/15	20/60/20/-		1023				NIL		
43					1027 WATER						
44											
45											

REBORE

TOTAL DEPTH: 42'

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, MOD. BROWN, SUBROUNDED, MOIST TO WET, DENSE, WITH ROUNDED FINE TO COARSE GRAVEL.	O	O	O
17		O	O	O
18		O	O	O
19		O	O	O
20	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOD. BROWN, SUBROUNDED, MOIST TO WET, MED. DENSE, WITH W.G. SAND.	O	O	O
21		O	O	O
22	(SLOUGH)	O	O	O
23	(HIT A ROCK WHICH DEFLECTED THE AUGER. COULDN'T USE HAMMER FOR SAMPLING, THEREFORE HAD TO MOVE PEF 1 WEST AND REDOOR AT	O	O	O
24	~~WELL~~ GRADED SAND, MEDIUM TO COARSE, DENSE, MOIST, POORLY MOD. BROWN, WITH SUBROUNDED FINE GRAVEL.	O	O	O
25		O	O	O
26	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOD BROWN, SUBROUNDED, MOIST TO DRY, VERY DENSE, WITH W. G. SAND.	O	O	O
27		O	O	O
28		O	O	O
29		O	O	O
30		O	O	O
31		O	O	O
32		O	O	O
33		O	O	O
34	POORLY GRADED SAND; MED GRAINED, MOIST, MOD BROWN.	O	O	O
35	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOD BROWN, SUBROUNDED, MOIST TO WET, V. DENSE, WITH W.G. SAND.	O	O	O
36		O	O	O
37		O	O	O
38	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, WET, MOD. BROWN, DENSE, ROUNDED, WITH FINE TO COARSE ROUNDED GRAVEL.	O	O	O
39		O	O	O
40		O	O	O
41	WELL GRADED GRAVEL WITH SAND, FINE TO ~~VERY~~ COARSE (JP) NO FINES, WET, MEDIUM DENSE, ROUNDED, W/ V.C. SAND.	O	O	O
42		O	O	O
43		O	O	O
44	SILT WITH SAND, VERY STIFF, DRY, LT. BROWN, LOW PLASTICITY W/ VF SAND.	O	O	O
45		O	O	O

Borehole Record for AB-10

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-10

Project Name: HAMILTON LABRUE

Site Location: CHEHALIS, WA

Date Started/Finished: 6-3-00

Drilling Company: GEOTECH

Driller's Name: JOEL WELSH

Geologist's Name: J. FOWLOW

Geologist's Signature: [signature]

Rig Type (s): CRUDE B-59

Drilling Method (s): HSA

Bit Size (s) _____ Auger Size (s) _____

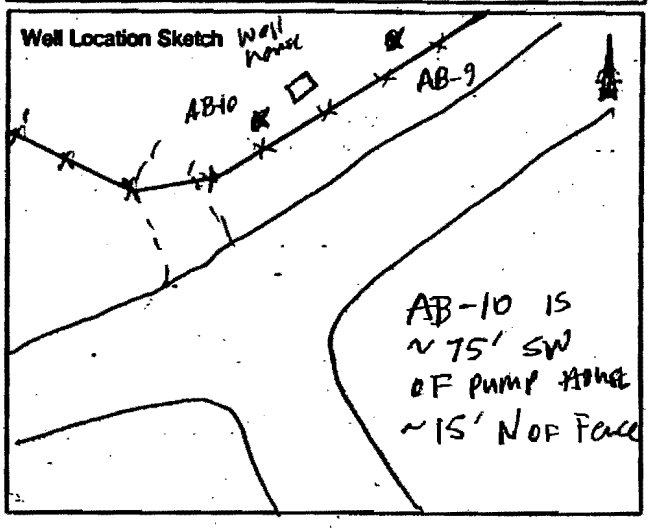
Auger/Split Spoon Refusal _____

Total Depth of Borehole Is _____

Total Depth of Corehole Is _____

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4	[X] AB-10 -06	2/2/2	55/30/15/-	1308		1.5		CL		
5										
6	[ ] AB-10 -08	2/1/4	15/25/50/-	1311		1.5		SM		
7										
8	[X] AB-10 -10	2/4/18	T/5/35/60	1316		1.5				
9										
10	[ ] AB-10 -12	3/10/18	T/5/35/60	1318		0.5				
11										
12	[X] AB-10 -14	8/8/11	T/5/25/70	1322		1.0		GW		
13										
14	[ ] AB-10 -16	15/18/21	T/5/15/80	1327		1.0				
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

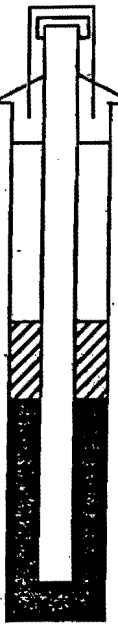
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:

- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4	LEAN CLAY WITH SAND, MED GRAY WITH LT. BROWN MOTTLING, MED. STIFF, MOIST, SLIGHT PLASTICITY, WITH V.F. SAND.	○	○	○
5		○	○	○
6	~~LEAN~~ (F) SILTY SAND WITH CLAY, V.FINE, PALE YELLOWISH BROWN, MOIST, LOOSE, WITH SILT & CLAY.	○	○	○
7		○	○	○
8		○	○	○
9	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOD BROWN, WET TO MOIST, DENSE, SUBROUNDED, WITH W.G. SAND.	○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13	(GRAVEL % INCREASE↓, WET, ANGULAR)			
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16	AB-10 -18	9/11/14	T/5/65/30	15	1332		1.5		SW		
18	AB-10 -20	15/15/22	T/5/30/65		1336 1338 water		1.5		GW		
20	AB-10 -22	14/15/21	T/5/75/20		1346		1.5				
22	AB-10 -24	7/6	T/5/90/5		1415		0.5		SP		
24	AB-10 -26	15/29/34	T/5/90/5		1420		1.5				
26	AB-10 -28	13/26/30	T/5/70/25		1427		1.0				
28	AB-10 -30	12/29/34	T/5/55/40		1432		1.0		GW		
30	AB-10 -32	22/37/50	T/5/65/30		1438		1.0				
32	AB-10 -34	12/19/24	T/5/85/10		1445		1.5		SP		
34	AB-10 -36	19/33/50	T/20/60/20		1449		1.5		SM		
36	AB-10 -38	33/50 5	T/5/70/25		1456		1.5		SW		
38	AB-10 40	16/35 5/5	T/10/20/70		1501		1.5		GW-GM		
40	AB-10 -42	15/40/50 3	T/T/15/85 (SLOUGH?)		1509		1.5		GW		
42	AB-10 -44	16/08	20/60/20/-		1519		1.5		ML		
44											
45											

TOTAL DEPTH: 42'

NO sample

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, MOIST TO DRY, MEDIUM DENSE, SUBROUNDED, WITH FINE TO COARSE GRAVEL.			
17				
18	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE, MOD. BROWN, WET, DENSE, SUBANGULAR TO SUBROUNDED WITH W. G. SAND.			
19				
20	POORLY GRADED SAND, COARSE, LIGHT BROWN, DRY, DENSE, WITH ROUNDED FINE GRAVEL.			
21				
22	(1350 RIG REPAIR TO 1415)			
23				
24	(MOIST, NO GRAVEL <5%) (SAND FINE TO MEDIUM)			
25	WELL GRADED SAND WITH GRAVEL, FINE TO V. COARSE, MOIST, MOD. BROWN, V-DENSE, WITH ROUNDED FINE TO COARSE GRAVEL			
26				
27				
28				
29				
30				
31				
32	POORLY GRADED SAND, MEDIUM GRAINED, MOIST, DENSE, MOD. BROWN, WITH ROUNDED FINE GRAVEL.			
33				
34				
35	SILTY SAND WITH GRAVEL, MEDIUM GRAINED, MOIST, V. DENSE, MOD. BROWN, WITH FINE TO COARSE GRAVEL & SILT.			
36				
37	WELL GRADED SAND WITH GRAVEL, MOIST, FINE TO COARSE, SUB ANGULAR, MOD BROWN, V. DENSE, WITH FINE TO COARSE SUB ROUNDED TO SUB-ANGULAR GRAVEL			
38				
39	WELL GRADED GRAVEL WITH SILT AND SAND, FINE TO COARSE, MOIST TO WET, V. DENSE, MOD. BROWN, WITH WG SAND.			
40				
41	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE ROUNDED TO SUB ANGULAR, WET, V. DENSE, MOD BROWN, NO FINES, WITH W. G. SAND.			
42				
43	SILT WITH SAND, VERY STIFF DRY, LT. BROWN, LOW PLASTICITY, WITH V. F. SAND.			
44				
45				

INVESTIGATION-DERIVED WASTE INVENTORY SHEET

Site: HAMILTON LABREE No. of Drums:

Inventory Date:

Waste Source	Drum/Container ID Number	Date Generated	Contents (Solid, Liquids, etc.)	Approximate Volume	Drum Location/Comments
GPA-4	11	6-26	Soil		
AB-1	111	6-27	"		
GP-3	11	6-27	"		
AB-2	11	6-27	"		
AB-3	111	6-28	"		
AB-4	11	6-28	"		
AB-5	111	6-29	"		
AB-6	111	6-29	"		
AB-9	111	6-30	"		
AB-10	111	6-30	"		
AB-8	111	7-1	"		
AB-7	11	7-1	"		
	31				

INVESTIGATION-DERIVED WASTE INVENTORY SHEET

Site: _____ No. of Drums: _____

Inventory Date: _____

	Waste Source	Drum/Container ID Number		Date Generated		Contents (Solid, Liquids, etc.)		Approximate Volume		Drum Location/Comments	
		AB-1		SP-1	AB-2		AB-3	AB-4		AB-5	AB-6
	1 Mob	1	X	X		X (1)	X	X		X	X
675	2 Footage	46	46	50		48 (190)	50	50		50	48
300	3 Samples	23	10	12		23 (67)	23	22		24	23
15	4 Decon	2	2/3	2/3		~~3/4~~ (4 1/3)	1	1		1	1
6	5 Waste	1	1/4	1/2		1/2 (2 1/4)	1/4	1/4		3/4	1/2
28	6 Drum	3	2	2		2 (9)	3	2		3	3
2	7 Standby	0	0	0		0 (0)	0	0		1/2	1/2
6	8 Per Diem	1	1	X		X (2)	1	X		1	X

		AB-9	AB-10	E		AB-8	AB-7			
1	Mob	X	X			X	X	X	X	
2	Foot	42	42	84	86	46	44	90	90	
3	Samp	20	20	40	39	22	21	43	41	
4	Decon	1	1	2	3	1	1	2	2.25	
5	Wst	1/4	1/4	0.5	1.0	1/4	.75	1	1	
6	Drums	3	3	6		3	3	6	6	
7	Standby	0	0	0		0	0	0	0	
8	PD	1	X	1		0	0	0	0	

	MON AB-1	MON E	TUES	TUES E	WED	WED E	THUR	THUR E
1	1	1	X	X	X	X	X	X
2	46	46	144	144	100	100	98	98
3	23	23	43	45	46	45	47	47
4	1.25	2	2.75	2.3	2	2	2	2
5	.30	1	.75	1.5	.5	.5	1.25	1.25
6		3		6		5	6	
7	.5	0	1	0	.75	0	1.0	1.75
8	1	1	1	1	1	1	1	1

INVESTIGATION-DERIVED WASTE INVENTORY SHEET

Site: _____ No. of Drums: _____

Inventory Date: _____

Waste Source	Drum/Container ID Number	Date Generated	Contents (Solid, Liquids, etc.)	Approximate Volume	Drum Location/Comments
	E&E		GEO		
1 mob	1		1		✓
2 drill'	562		564	+2	+ 286
3 samples	242		239	−3	+ 39
4 decon	12.1/3		12.25	—	− 140
5 w. m.	5.5		4.50	−1	+ 86
6 drums	31+2		33	—	✓
7 standby	0		3.75	+3.75	−105 −525
8 perdiem	5 1/2		5		+ 217
					−270
					$\boxed{-412}$

Borehole Record for AB-11

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-11

Project Name: HAMILTON LABREE

Site Location: CHEHALIS, WA

Date Started/Finished: 8/24/00

Drilling Company: GEOTECH

Driller's Name:

Geologist's Name: CHARLIE GREGORY

Geologist's Signature: Charlie T. Gregory

Rig Type (s):

Drilling Method (s): HOLLOW STEM AUGER (HSA)

Bit Size (s): Auger Size (s): 4¼ ID

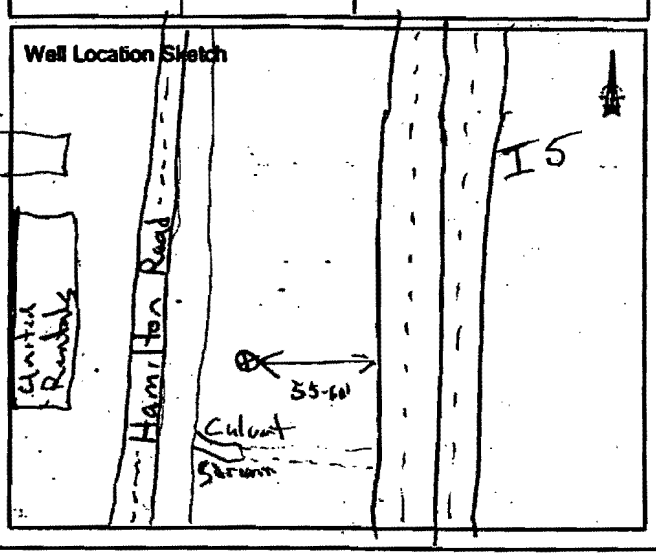
Auger/Split Spoon Refusal:

Total Depth of Borehole Is:

Total Depth of Corehole Is:

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1											
2											
3											
4											
5	AB-11 -05	6	10	60/30/5/5	1240		1.5				
6		10									
7											
8											
9											
10	AB-11 -10	10	11	T/5/70/25			1.5		SW		
11		13		~~T 5 70 5~~	1255				SM		
12											
13											
14											
15											

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

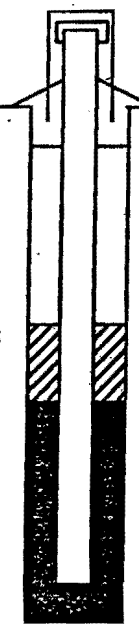
Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:
Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____
- ☐ PVC _____
- ☐ Stainless Steel _____

Pack Type/Size:
- ☐ Sand _____
- ☐ Gravel _____
- ☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6	gray clay with silt trace sand trace gravel with	○	●	○
7	organic roots mottled Brown 95% gray 5% brown	○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11	~~Brown Sand little gravel~~ Brown medium sand little coarse gravel trace silt.	○	○	●
12	Grading to Brown medium sand trace gravel trace silt.	○	○	○
13		○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Co
16	AB-11 -15	45 24	30	T 5 50 45		1310		1.5		GW		
17												
18												
19												
20	AB-11 -20	3 13	10	5 5 30 60		1330		1.5		GW		
21				5 10 80 5						SP		
22												
23												
24												
25	AB-11 -25	26 54	30	T T 30 70		1350		1.5		GW		
26												
27												
28												
29												
30	AB-11 -30	26 64	38	T 5 35 60		1405		1.6		GW		
31												
32												
33												
34												
35	AB-11 -35	30	60/5	T 5 35 60		1430		1.5		GW		
36												
37												
38												
39												
40	AB-11 -40	15 50	49	0 T 10 60		1450		1.5		SP		
41				T 5 35 60						GW		
42												
43												
44												
45												

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
16	Brown ~~Sand~~ poorly sorted sand and gravel, trace silt, rounded		●	
17				
18				
19				
20				
21	Brown poorly sorted gravel and sand, trace silt, trace clay			●
22	Brown well sorted medium sand, little silt, trace clay, trace gravel.			
23				
24	Very hard drilling			
25	Brown well graded gravel and ~~gravel~~ sand subrounded to angular			●
26	with depth.			
27				
28				
29				
30	~~Brow~~ Brown well graded gravel and sand subrounded, trace silt			●
31				
32				
33				
34				
35	Brown well graded subrounded to subangular gravel and sand,			●
36	trace silt, trace clay, few cobbles			
37				
38				
39				
40	Brown poorly graded medium sand			
41	~~Brown~~ well graded subrounded gravel and sand trace silt.			●
42				
43				
44				
45				

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
	AB-11	4	50	0 5 85 0		1510		1.5		SP		
46	-45			1 5 35 60						GW		
47												
48												
49												
50	AB-11	7	15	60 30 10 0		1605		1.5		CL		
51	-50	28										
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46	Brown sand trace silt, wet			●
47				
48	Brown well graded sub rounded gravel and sand trace silt.			
49				
50				
51	gray dry lean clay hard, silty, little very fine sand. sl plastic	●		
52				
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

05_E&E Boring Logs 2000-2001

Borehole Record for ~~AB~~ MW-10

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

hard to read (For P2

DRILLING LOG FOR ~~MW~~ MW-9

Ecology Well # 44096/ACP030

Project Name: Hamilton-Labree

Site Location: CHEHALIS, WA

Date Started/Finished: 8/25/00

Drilling Company: Geotech

Driller's Name: Marlon Cross

Geologist's Name: Kerrie Stewart

Geologist's Signature: Kerrie M Stewart

Rig Type (s):

Drilling Method (s): Hollow Stem Auger

Bit Size (s): Auger Size (s): 4 1/4 ID

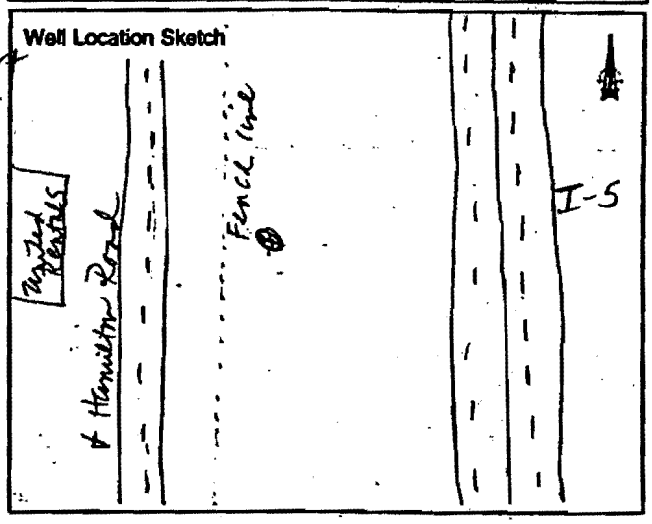
Auger/Split Spoon Refusal:

Total Depth of Borehole Is:

Total Depth of Corehole Is:

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5	MW-9	11 21	35/0/5/0	0925		1.5		ML		
6		22								
7										
8										
9										
10	MW-9	5 7	0/5/60/35	0940		1.5		GN/SN		
11		34								
12										
13										
14										
15										

SCREENED WELL

Stick-up _____ ft

Top of Grout _____ ft

Top of Seal at _____ ft

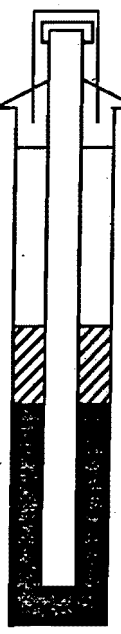
Top of Sand Pack _____ ft

Top of Screen at 29.5 ft

Bottom of Screen at 49.5 ft

Bottom of Hole at 50 ft

Bottom of Sandpack at 50



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size 0.020"

Screen Type _____

☒ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☒ Sand 10-20 CSST

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	Gray, firm, clayey silt w/ trace sand, very dry.	●	○	○
6	(some oxidation)	○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		●	●	○
11	Reddish Brown Firm to loose, Gravelly SAND w/ trace silt	○	○	○
12	increases w/ gravel @ depth. Dry to moist	○	○	○
13				
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16	MW-9	12	14	0/5/80/15	KMS GW	0950		1.5		SW GW		
17		30		Sample # 00080360						KMS		
18												
19										GW SW		
20	MW-9									KMS		
21		4	34	0/5/20/75		1005		1.5				
22		32										
23												
24												
25	MW-9	19	44	5/5/45/45		1015		1.5		GW/ SW		
26		54		Sample # 00080381								
27												
28												
29												
30	MW-9	17	18	0/5/85/15		1030		1.5		SW		
31		40		Sample # 00080382								
32												
33												
34								KMS 1.5				
35	MW-1	8	17	0/5/95/5		1050		1.5		SP		
36		34		Sample # 00080383								
37												
38												
39												
40	MW-9 -40	35	40/50	<12/10/40/40		1620		1.3		GW/ GW		
41				4448 4394								
42												
43												
44												
45												

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	●	○
17	Brown, Firm, Gravelly SAND, trace silt, moist	○	○	○
18		○	○	○
19		○	○	○
20		○	○	○
21	Brown, Loose to dense, Sandy GRAVEL (coarse gravels), trace silt, moist	○	○	○
22		○	○	○
23		○	○	○
24		○	○	○
25	Brown Firm to dense Sandy GRAVEL/GRAVELLY SAND, trace silt & clay, moist.	○	●	○
26		○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30		○	○	○
31	Brown, Firm to dense Gravelly SAND w/ trace silt; slight odor (solvent?) Sample collected.	○	●	○
32		○	○	○
33		○	○	○
34		○	○	○
35		○	○	○
36	Brown, Loose to Firm, Gravelly SAND w/ trace silt, sample graded from sands to gravel.	○	●	○
37		○	○	○
38		○	○	○
39	NOTE: ~~1100~~ Drillers begin installation of monitoring well.	○	○	○
40	MW installed to TD of 34½ feet bgs. Drillers used water during well installation to keep the formation from collapsing.	○	○	○
41	1215 During installation of the well – the screen buried 27 feet bgs.	○	○	○
42	~~the well was pulled. And the borehole will be abandoned.~~	○	○	○
43		○	○	○
44	Silty Sandy Gravel, Lt. Brown, wet, no odor, no sheen	○	○	⊗
45	very dense to hard, angular to subrounded gravel in silt sand matrix, mod. graded to well graded	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	MW9 -45	24/35/50	10/10/30/50 ØØØ8Ø335		1640		1.5		Gal GW		
47											
48											
49											
50	MW9 50'	13/13/13	100/T/ØØ ØØØ8Ø336		1700		1.5		MAL		
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	Sandy Gravel with silt, wet, no odor, no sheen,			⊗
47	very dense to hard, well graded gravel & sand			
48	~10% fines. Gravel is angular to subrounded, sand			
49	is f-m same coarse, pred. quartz & K-spar.			
50				
51	Silt, blue gray, very stiff competent clay/silt		⊗	
52	aquitard. Silt is massive with some v. fine sand,			
53	micaceous, small root and wood fragments, moist,			
54	not saturated, no odor, no sheen.			
55	Boring terminated @ 51.5' bgs.			
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

WELL DEVELOPMENT RECORD

SITE HAMILTON - LABREE DATE 8-27-00

LOCATION CHEHALIS, WA WELL NO. MW-9

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2(0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = _____ gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Met per Meter Depth
1	0.041	0.0055	0.509	0.509 x1
1 1/2	0.092	0.0123	1.142	1.142 x1
2	0.163	0.0218	2.024	2.024 x1
2 1/2	0.255	0.0341	3.167	3.167 x1
3	0.367	0.0491	4.558	4.558 x1
3 1/2	0.500	0.0668	6.209	6.209 x1
4	0.653	0.0873	8.110	8.110 x1
4 1/2	0.826	0.1104	10.260	10.260 x1
5	1.020	0.1364	12.670	12.670 x1
5 1/2	1.234	0.1650	15.330	15.330 x1
6	1.469	0.1963	18.240	18.240 x1
7	2.000	0.2673	24.840	24.840 x1
8	2.611	0.3491	32.430	32.430 x1
9	3.305	0.4418	41.040	41.040 x1
10	4.080	0.5454	50.670	50.670 x1
11	4.937	0.6600	61.310	61.310 x1
12	5.875	0.7854	72.960	72.960 x1
14	8.000	1.0690	99.350	99.350 x1
16	10.440	1.3960	129.650	129.650 x1
18	13.220	1.7670	164.180	164.180 x1
20	16.320	2.1820	202.680	202.680 x1
22	19.750	2.6400	245.280	245.280 x1
24	23.500	3.1420	291.850	291.850 x1
26	27.580	3.6870	342.520	342.520 x1
28	32.000	4.2760	397.410	397.410 x1
30	36.720	4.9090	456.020	456.020 x1
32	41.780	5.5850	518.870	518.870 x 1
34	47.160	6.3050	585.680	585.680 x1
36	52.880	7.0690	656.720	656.720 x1

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419 x 10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 5.05 feet BTOIC
WELL DEPTH (TD) 49.15
COLOR Brown
ODOR Solvent
CLARITY Opaque

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) _____
WELL DEPTH (TD) _____
COLOR _____
ODOR _____
CLARITY _____

DESCRIPTION OF DEVELOPMENT TECHNIQUE Well pumped w/ 12 volt PVC submersible pump - pumped moved up across screen periodically. Pumped at max rate.

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm) mS/cm	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
1155	5	5.61	6.76	.215	13.9	999+	brown, opaque
1207	20	5.61	6.33	.208	17.8	366	murky, clearer than previous sample
1216	40	5.62	5.95 ~~6.06~~	.201	15.1	369	slightly yellow-brown, transparent
1227	50	5.60	5.90	.196	14.2	368	Pump raised to 39 feet BGS
1240	70	5.60	5.89	.199	13.5	369	Slightly yellowish, translucent
1252	90	5.60	6.07	.199	13.7	366	Water appears clear. Pump raised to 32'
1300	100	5.60	6.05	.194	~~18.7~~ 13.6	366	Brown, opaque
1315		5.58	5.89	.201	13.0		slightly murky, whitish

Purge Volume: 44.10 x .5 = 22 gal Horiba used for WQ analysis

DEVELOPED BY: _____ DATE _____

Borehole Record for MW-10

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-10

Project Name HAMILTON LABREE

Site Location Chehalis, WA

Date Started/Finished ~~8/25/00~~ 8/26/00 - 8/24/00

Drilling Company GeoTech

Driller's Name Arcturo

Geologist's Name Ryan Whitchurch

Geologist's Signature R. Whitchurch

Rig Type (s) Failing

Drilling Method (s) HSA

Bit Size (s) 6¼" OD Auger Size (s) 4" ID

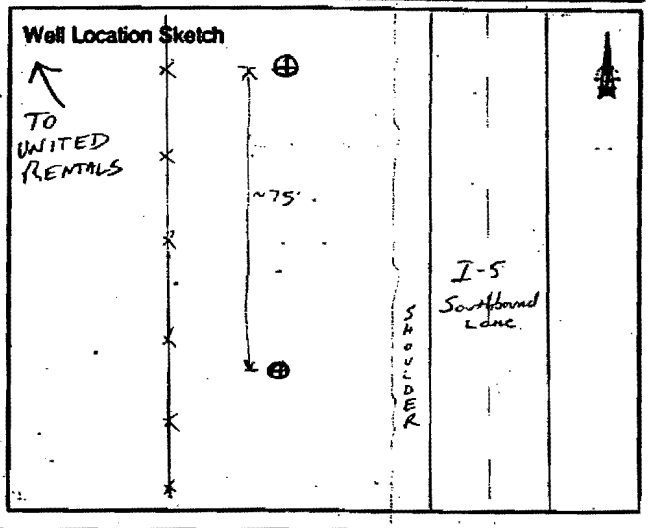
Auger/Split Spoon Refusal NONE

Total Depth of Borehole Is 50' BGS

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										SPT is 3" dia, 18"/long split spoon sampler.
2										
3										
4										
5										SPT = 5-6.5 feet
6	NS	16 21 / 24 X	GR/SM	1026	SPT 1	80%			NR	
7										
8										
9										
10	00080	20 24	SM/GR	1122	SPT 2	100%			0 FID	No odor. SPT = 10.0-11.5 feet
11	390	34 X							0 PID	
12										
13										
14										
15										

MW-10 HAMILTON LABREE 8/26/00

SCREENED WELL

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

Stick-up _____ ft

GROUND SURFACE

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
	Ecology Well No: 44096/ACF031			
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6	5-6.5 SILTY, SANDY GRAVEL – Coarse gravel to cobbles (3"+)	○	⊗	○
7	composed of rounded basalt, with red-brown to yellow,	○	⊗	○
8	iron-rich silty sands (moist). No odor.	○	○	○
9	NOTE: Well due S (MW) measured with FID. Reading exceed	○	○	○
10	500ppm, so we decide to upgrade drill crew to level C on	○	○	○
11	this hole.	○	○	⊗
12	10.0-11.5 GRAVELLY, SILTY SAND – Brown, loose, fine to coarse, wet,	○	○	⊗
13	silty (20%), gravelly (40% F-C) sand. High Fe?	○	○	○
14		○	○	○
15		○	○	○

TERMINATION CRITERIA [redacted] 8/26/00

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16	00080 391	15	20	SM/GR		1142	SPT 3	50%			0 FID	
		3	X								0 PID	SPT=1
17												
18												
19												
20												
21	00080 392	10	20	GR/SM		1158	SPT 4	50%			0 FID	SPT=20 Borehole
		4	X								0 PID	4ppm 3ppm
22												No Brea No od
23												
24												
25												
26	00080 393	NR	NR	GR/SM		1213	SPT 5	60%			0 PID	Borehol
		NR	X								0 FID	BZ=% SPT=25
27												
28												
29												
30												
31	00080 394	21	31	SM/GR		1225	SPT 6	25%			0 FID	Borehole BZ=%
		50	X								0 PID	SPT=30
32												
33												
34												
35												
36	00080 395	9	21	SM/GR		1243	SPT 7	30%			0 FID	Borehole: BZ=%
		30	X								0 PID	SPT=35
37												
38												Break
39												decon lunch
40												
41	00080 396	5	5	SM?		1435	SPT 8	20%			FID	
		41	X								PID	
42												
43												
44												
45												

MW-10 HAMILTON LABREE 8/26/00

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
	SAME AS 10-11.5 feet.	○	○	⊗
16		○	○	⊗
17		○	○	○
18		○	○	○
19		○	○	○
20		○	○	○
21	20.0-21.5 SILTY, SANDY GRAVEL, WITH COBBLES – Brown,	○	○	○
22	wet, F-C gravel with saturated silty sand	○	○	○
23	as interstial material. Large Cobbles were	○	○	○
24	cored through.	○	○	○
25		○	○	○
26	25.0-26.5 SILTY, SANDY GRAVEL – Brown, wet, silty (15%),	○	○	⊗
27	sandy (20%), F-C gravel. Few cobbles	○	○	⊗
28		○	○	○
29		○	○	○
30		○	○	○
31	30-31.5 SILTY GRAVELLY SAND – Brown to DK Gray,	○	○	⊗
32	silty (10%), gravelly (F-M 25%) volcanic	○	○	⊗
33	sand (basalt). Wet.	○	○	○
34		○	○	○
35		○	○	○
36	35-36.5 SILTY GRAVELLY SAND – Yellow-brown, silty (15%)	○	○	⊗
37	gravelly (15-20%) volcanic sand (some olivine, etc	○	○	⊗
38	present). Wet. Yellow clay lens (1" thick)	○	○	○
39	at 36.25' BGS. Not continuous clay (Pocket).	○	○	○
40		○	○	○
41	40.0-41.5 SILTY SAND – Yellow to yellow brown (Limonitic-Fe), silty (20-30%),	○	○	⊗
42	wet, sand. Large cobble was jammed in the	○	○	⊗
43	end of the SPT barrel. Sample may contain	○	○	○
44	slough (hard to judge slough/core boundary).	○	○	○
45		○	○	○

MW-10 HAMILTON-LABREE 8/26/00

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
45	00080	2	2	ML		1512	SPT				0 FID	Borehole: 0/0 BZ: 0/0
	397	11	X				#9	75%			0 PID	SPT = 45.0-46.5 ft
47												
48												
49												
50												
51	END OF BORING (50 ABGS)											
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

MW 10 ~~HARRISON~~ HAMILION LABRUE 8/26/00

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	45.0-45.5 SILT - Bluegray, dense, slightly micaceous	☒	○	○
47	silt. Appears to be dry. No odor.	☒	○	○
48		○	○	○
49		○	○	○
50		○	○	○
51	Hole overdrilled to 50 feet BGS (penetration rates were	○	○	○
52	fast in the silt, and overdrill happened while analytical	○	○	○
53	sample was being collected.	○	○	○
54		○	○	○
55		○	○	○
56		○	○	○
57		○	○	○
58		○	○	○
59		○	○	○
60		○	○	○
61		○	○	○
62		○	○	○
63		○	○	○
64		○	○	○
65		○	○	○
66		○	○	○
67		○	○	○
68		○	○	○
69		○	○	○
70		○	○	○
71		○	○	○
72		○	○	○
73		○	○	○
74		○	○	○
75		○	○	○

WELL DEVELOPMENT RECORD

SITE HAMILTON LABREE DATE 8-27-00

LOCATION CHEHALIS, WA WELL NO. MW-10

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2 (0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = _____ gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Met per Meter Depth
1	0.041	0.0055	0.509	0.509 x1
1 1/2	0.092	0.0123	1.142	1.142 x1
2	0.163	0.0218	2.024	2.024 x1
2 1/2	0.255	0.0341	3.167	3.167 x1
3	0.367	0.0491	4.558	4.558 x1
3 1/2	0.500	0.0668	6.209	6.209 x1
4	0.653	0.0873	8.110	8.110 x1
4 1/2	0.826	0.1104	10.260	10.260 x1
5	1.020	0.1364	12.670	12.670 x1
5 1/2	1.234	0.1650	15.330	15.330 x1
6	1.469	0.1963	18.240	18.240 x1
7	2.000	0.2673	24.840	24.840 x1
8	2.611	0.3491	32.430	32.430 x1
9	3.305	0.4418	41.040	41.040 x1
10	4.080	0.5454	50.670	50.670 x1
11	4.937	0.6600	61.310	61.310 x1
12	5.875	0.7854	72.960	72.960 x1
14	8.000	1.0690	99.350	99.350 x1
16	10.440	1.3960	129.650	129.650 x1
18	13.220	1.7670	164.180	164.180 x1
20	16.320	2.1820	202.680	202.680 x1
22	19.750	2.6400	245.280	245.280 x1
24	23.500	3.1420	291.850	291.850 x1
26	27.580	3.6870	342.520	342.520 x1
28	32.000	4.2760	397.410	397.410 x1
30	36.720	4.9090	456.020	456.020 x1
32	41.780	5.5850	518.870	518.870 x1
34	47.160	6.3050	585.680	585.680 x1
36	52.880	7.0690	656.720	656.720 x1

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419 x 10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 6.00 Feet BTOIC WL
WELL DEPTH (TD) 48.88 Feet BTOIC TD
COLOR LIGHT BROWN
ODOR NONE
CLARITY OPAQUE

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) _____
WELL DEPTH (TD) _____
COLOR _____
ODOR _____
CLARITY _____

DESCRIPTION OF DEVELOPMENT TECHNIQUE well bailed briefly. Well pumped with 12volt PVC submersible pump – pump moved up across screen periodically. Pumped at max rate.

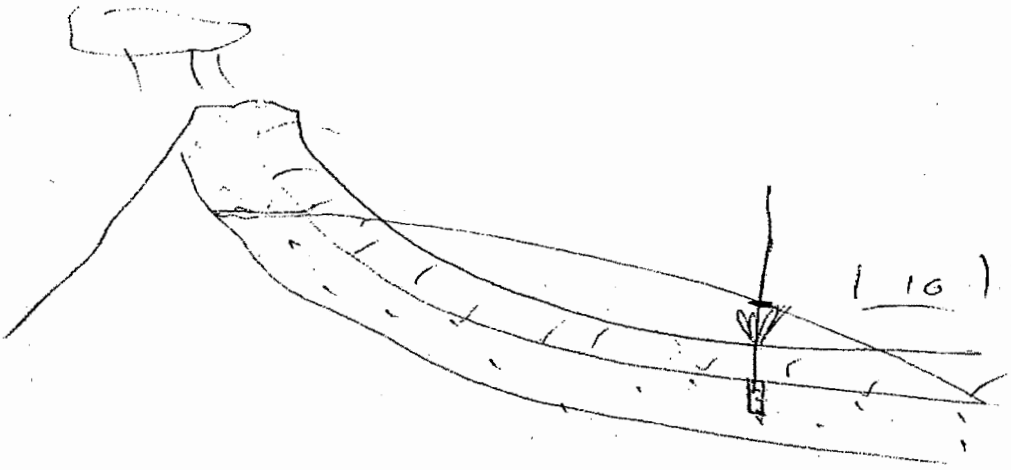
WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN GALS.	TOTAL VOL. WITHDRAWN BORE VOL. (Ft BTOC)	pH	COND. ~~(µmhos/cm)~~ mS/cm	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
							1 ballon removed by bailer at 0830
0845	1	6.00	NR	NR	NR	NR	Begin pumping (set at 45)
0858	20	6.31	6.72	0.192	12.7	886	Water slightly yellow-brown
0912	40	~~5.79~~ 6.31	5.74	0.180	12.9	324	Water appears clear
0924	55	6.40	5.88	0.177	13.1	278	Pump raised to 35 feet BGS
							Water appears clear
0940	~~60~~ 65	6.43	5.72	0.176	13.0	168	Water clear
0949	75	6.43	5.69	0.176	12.8	101	Water clear. Raise pump to 30 ft.
0955	85		5.69	0.176	12.9	615	Water slightly yellow-brown.

Purge = ~ 7.5 gallons per volume
3 Vol = 22 gallons

HORIBA used for WQ
(horiba had no cap on the pH probe)

DEVELOPED BY: _____ DATE _____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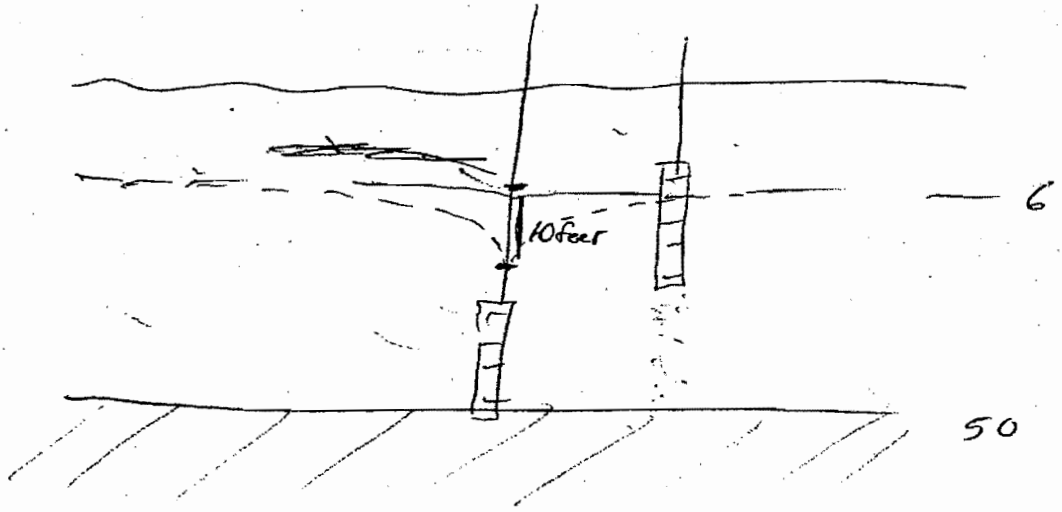
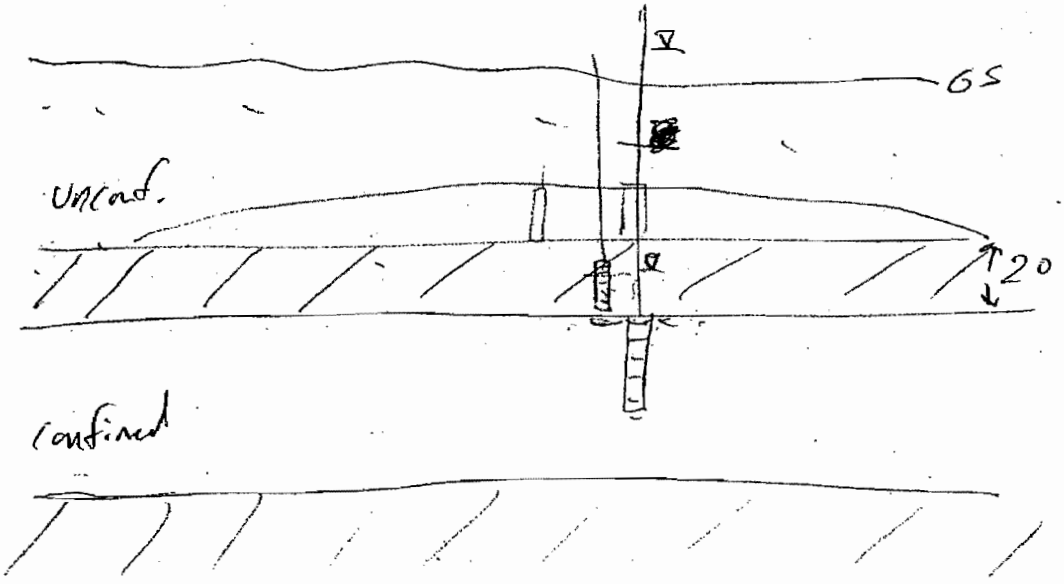

10feet
6
50


65
Uncnf.
20
confined

Borehole Record for MWR-8

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MWR-8

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished 8-24-00

Drilling Company ~~Lockheed Martin -ESAT~~

Driller's Name ~~Woody Campbell~~ Arthur

Geologist's Name ~~Reed Lycay~~ Jeff Fanlow

Geologist's Signature

Rig Type (s) ~~Geoprobe~~ Geotech

Drilling Method (s) ~~direct push~~

Bit Size (s) ~~2 in.~~ Auger Size (s) NA

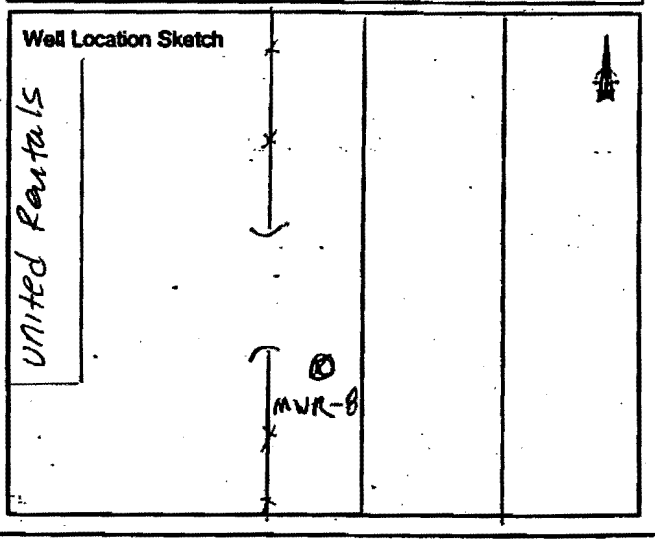
Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5	MWR									
6	8-7	3/5/7	10/10/30/T	1224		1.5		ML		
7										
8										
9										
10	MWR	6/10/13		1233		1R				
11	-8-12									
12										
13										
14	0330									
15	MWR -8-16	12/21/50	T/5/3/65	1250		1.5		GW		

4

Lock Number _____

SCREENED WELL

Inner Casing Material _____

Inner Casing Inside Diameter 6 7/8 inches

Stick-up Ø ft

GROUND SURFACE

Top of Grout Ø ft

Top of Seal at -1.0 ft

Top of Sand Pack 8 ft

Top of Screen at 10 ft

Bottom of Screen at 50 ft

Bottom of Hole at 51.5 ft

Bottom of Sandpack at 51.5

Quantity of Material Used:

Bentonite Pellets _____

Cement 6 50# bags

Borehole Diameter 8.25 inches

Cement/ Bentonite N/A 6 50# bags

Grout Ø

Screen Slot Size 0.20

Screen Type _____

☒ PVC V wire cont.

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand 10-20 CSSI (43) 50# bags

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	SANDY SILT, LIGHT BROWN, STIFF, DRY, WITH RUST OXIDATION STAINING, FINE SAND.	○	○	○
6		○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11		○	○	○
12		○	○	○
13		○	○	○
14		○	○	○
15	WELL GRADED GRAVEL WITH SAND, MOD-BROWN, FINE TO COARSE, MOIST TO WET, VERY DENSE, WITH WG SAND.	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Com
16											
17											
18											
19											
20	MWR -B-22	15/34/24	T/S/25/70		1320		~~GW~~ 1.5		GW		
21											
22											
23											
24											
25	0331 MWR -B-27	44/50/3	T/S/25/70		1328		0.3		GW		
26											
27											
28											
29											
30	MWR -B-32	5/5/5	T/S/35/60		1334		1.0		GW		
31											
32											
33											
34											
35	MWR -B-37	5/5/10	T/T/15/85		1400		1.5		GW		
36											
37											
38											
39											
40	0332 MWR -B-42	14/44/50/3	T/S/25/70		1420		1.0		GW		
41											
42											
43											
44											
45	MWR -B-47	8/10/13	T/S/25/70		1440		1.5				

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		○	○	○
17		○	○	○
18		○	○	○
19		○	○	○
20	WELL GRADED GRAVEL WITH SAND, FINE TO COARSE DARK GREY, MOIST TO WET, VERY DENSE, SUBANGULAR,	○	●	●
21	WITH W.G. SAND.	○	○	○
22		○	○	○
23		○	○	○
24		○	○	○
25	WELL GRADED GRAVEL WITH SAND, WET.	○	○	●
26	LARGE COBBLE OBSTRUCTION	○	○	○
27		○	○	○
28		○	○	○
29		○	○	○
30	WELL GRADED GRAVEL WITH SAND, WET (MED. DENSE).	○	○	●
31		○	○	○
32		○	○	○
33		○	○	○
34		○	○	○
35	WELL GRADED GRAVEL WITH SAND, WET.	○	○	●
36	INSUF FINES TO SAMPLE FOR CHEM. ANALYSIS.	○	○	○
37		○	○	○
38		○	○	○
39		○	○	○
40	WELL GRADED GRAVEL WITH SAND.	○	○	●
41	INCREASING SAND & FINES.	○	○	○
42		○	○	○
43		○	○	○
44		○	○	○
45	WELL GRADED GRAVEL WITH SAND.	○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46											
47											
48											
49											
50	MWR	14/20/35	1/5/35/60		15 10		1.5		CW		
51	8-52		15/15/10/-						ML		
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46		O	O	O
47		O	O	O
48		O	O	O
49		O	O	O
50	WELL GRADED GRAVEL WITH SAND.	O	O	O
51		O	O	O
52	SILT, DARK GREY, DRY, HARD, WITH ROOTS.	O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75				

WELL DEVELOPMENT RECORD

SITE _____ DATE _____

LOCATION _____ WELL NO. MWR-8

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2 (0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = _____ gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Mete per Meter Depth
1	0.041	0.0055	0.509	0.509 x10
1 1/2	0.092	0.0123	1.142	1.142 x10
2	0.163	0.0218	2.024	2.024 x10
2 1/2	0.255	0.0341	3.167	3.167 x10
3	0.367	0.0491	4.558	4.558 x10
3 1/2	0.500	0.0668	6.209	6.209 x10
4	0.653	0.0873	8.110	8.110 x10
4 1/2	0.826	0.1104	10.260	10.260 x10
5	1.020	0.1364	12.670	12.670 x10
5 1/2	1.234	0.1650	15.330	15.330 x10
6	1.469	0.1963	18.240	18.240 x10
7	2.000	0.2673	24.840	24.840 x10
8	2.611	0.3491	32.430	32.430 x10
9	3.305	0.4418	41.040	41.040 x10
10	4.080	0.5454	50.670	50.670 x10
11	4.937	0.6600	61.310	61.310 x10
12	5.875	0.7854	72.960	72.960 x10
14	8.000	1.0690	99.350	99.350 x10
16	10.440	1.3960	129.650	129.650 x1
18	13.220	1.7670	164.180	164.180 x1
20	16.320	2.1820	202.680	202.680 x1
22	19.750	2.6400	245.280	245.280 x1
24	23.500	3.1420	291.850	291.850 x1
26	27.580	3.6870	342.520	342.520 x1
28	32.000	4.2760	397.410	397.410 x1
30	36.720	4.9090	456.020	456.020 x1
32	41.780	5.5850	518.870	518.870 x 1
34	47.160	6.3050	585.680	585.680 x1
36	52.880	7.0690	656.720	656.720 x1

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419 x 10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) _____
WELL DEPTH (TD) _____
COLOR _____
ODOR _____
CLARITY _____

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) _____
WELL DEPTH (TD) _____
COLOR _____
ODOR _____
CLARITY _____

DESCRIPTION OF DEVELOPMENT TECHNIQUE _____

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
1250	initial		7.12	.275	16.13	999	Dk Brown, silty
1255	10g		6.85	.220	12.1	999	" " "
1315	40g		6.77	.180	12.4	999	" " "
1330	75		6.71	.180	12.6	750	" " "

DEVELOPED BY: _____ DATE _____

Borehole Record for MWR-9

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR MWR-9

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished 8/25/00

Drilling Company ~~Lockheed Martin ESAT~~

Driller's Name ~~Woody Campbell~~

Geologist's Name ~~Reed Lyday~~ MARK OCHSNER

Geologist's Signature Mark Ochsner

Rig Type (s) ~~Geoprobe~~ ~~HSA~~ FLOW MOLE

Drilling Method (s) ~~direct push~~ HSA

Bit Size (s) N/A Auger Size (s) 10¼ OD NA

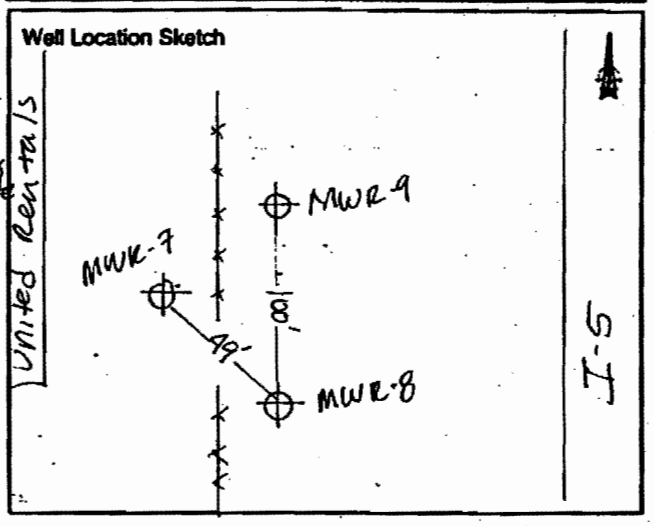
Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5	MWR 9.5'	3/6/8	<10/50/40/1	0830		1.5		ML		
6										
7										
8										
9										
10	MWR -9-10'	3/7/7	<10/30/30/31	0840		1.5		GM/GW		
11										
12										
13										
14										
15										

SCREENED WELL

Stick-up Ø ft

Top of Grout Ø ft

Top of Seal at -1 ft

Top of Sand Pack 17 ft

Top of Screen at 19 ft

Bottom of Screen at 49 ft

Bottom of Hole at 49' ft

Bottom of Sandpack at 49'

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets _____

Cement (6) 50# bags

Borehole Diameter 8.25 inches

Cement/Bentonite Ø

Grout Ø

Screen Slot Size 0.020"

Screen Type _____

☒ PVC V wire cont.

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand 10-20 CSST

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		O	O	O
2		O	O	O
3		O	O	O
4		O	O	O
5	Sandy silt with occ. gravel, Dark brown, med stiff, damp,	O	X	O
6	Sand is f-m grained, slighty weathered, gravel is	O	O	O
7	angular basalt, no odor, no sheen when wet in pail.	O	O	O
8		O	O	O
9		O	O	O
10	Silty Sandy Gravel, Dark Brown, med dense, damp,	O	X	X
11	no odor, no sheen when wet. Sand is slighty	O	O	O
12	weathered, f-m grained, gravel is angular to	O	O	O
13	Subangular basalt frags. Sand is predominately	O	O	O
14	Quartz and K-spar.	O	O	O
15		O	O	O

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)
16	MWR 9.15' 333	16/40/50	15/15/15/55		0930		1.5		GM	
17										
18										
19										
20	MWR 9.20'	22/42/50	15/15/15/55		0940		1.5		GM	
21										
22										
23										
24					1000					
25	MWR 9.25' 334									
26										
27										
28										
29										
30	MWR 9.30'	22/35/40	<10/20/30/40		1010		1.5		GM	
31										
32										
33										
34					1020					
35	MWR 9.35' 335	30/40/49	10/20/30/40				1.5		GM/GW	
36										
37										
38										
39										
40	MWR 9.40'	30/40/42	10/20/30/40		1045		1.5		GM/GW	
41										
42										
43										
44										
45										

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
	Becomes Saturated at ~10' bgs.	O	O	Ø
16	Silty Sandy Gravel, Dk Braun wet, no odor, no sheen	O	O	O
17	very dense to hard, gravel is angular to well rounded	O	O	O
18	in a silty sand matrix, somewhat cemented,	O	O	O
19	moderately weathered. Mod. graded	O	O	O
20	- As Above	O	O	O
21		O	O	O
22		O	O	O
23		O	O	O
24	As Above - wet, no odor, no sheen	O	O	Ø
25		O	O	O
26		O	O	O
27		O	O	O
28		O	O	O
29	As Above	O	O	Ø
30		O	O	O
31		O	O	O
32		O	O	O
33		O	O	O
34	Silty Sandy Gravel, Braun, wet (Saturated), no odor	O	O	Ø
35	no sheen, Very dense to hard, gravel is angular basalt.	O	O	O
36	to subrounded, in a silt sand matrix, moderately	O	O	O
37	weathered matrix, moderate to well graded.	O	O	O
38		O	O	O
39		O	O	O
40	Silty Sandy Gravel, Braun, saturated, no odor	O	O	Ø
41	no sheen, Very dense to hard, gravel is angular	O	O	O
42	to subrounded Basalt frag. in a silt sand matrix	O	O	O
43	Mod. weathered, moderately to well graded.	O	O	O
44		O	O	O
45				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	MWR 9-45	27/41/50	6" 10/20/40/30		1115		1.5		GM/SW		
47											
48									ML/ML		
49											
50	MWR 9-50	16/20/20	40/40/20/0		1130		1.5		ML		
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	Silty, Sandy, Gravel, Brown, wet, no odor no sheen			⊘
47	Very dense to hard, gravel is mod. well graded,			
48	some 2-3" rounded, basalt fragments.			
49	grades to dark blue gray silt with some clay - with some very fine			
50	sand, damp - moist, no odor or sheen.			
51	Boring terminated at 50½' bgs. Silt aquitard			
52	encountered at 48-49' bgs.			
53				
54				
55				
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

WELL DEVELOPMENT RECORD

SITE Hamilton-Labree DATE 8/28/00

LOCATION Chahalis WA. WELL NO. MWR-9

MEASUREMENT OF WATER LEVEL AND WELL VOLUME

- Prior to sampling, the static water level and total depth of the well will be measured with a calibrated weighted line. Care will be taken to decontaminate equipment between each use to avoid cross contamination of wells.
- The number of linear feet of static water (difference between static water level and total depth of well) will be calculated.
- The static volume will be calculated using the formula:

$$V = Tr^2(0.163)$$

Where:
V = Static volume of well in gallons;
T = Depth of water in the well, measured in feet;
r = Inside radius of well casing in inches;
and 0.163 = A constant conversion factor which compensates for r^2h factor for the conversion of the casing radius from inches to feet, the conversion of cubic feet to gallons, and (pi).
1 well volume (v) = _____ gallons.

Volume of Water in Casing or Hole

Diameter of Casing or Hole (in)	Gallons per Foot of Depth	Cubic Feet per Foot of Depth	Liter per Meter of Depth	Cubic Met per Meter Depth
1	0.041	0.0055	0.509	0.509 x1
11/2	0.092	0.0123	1.142	1.142 x1
2	0.163	0.0218	2.024	2.024 x1
21/2	0.255	0.0341	3.167	3.167 x1
3	0.367	0.0491	4.558	4.558 x1
31/2	0.500	0.0668	6.209	6.209 x1
4	0.653	0.0873	8.110	8.110 x1
41/2	0.826	0.1104	10.260	10.260 x1
5	1.020	0.1364	12.670	12.670 x1
51/2	1.234	0.1650	15.330	15.330 x1
6	1.469	0.1963	18.240	18.240 x1
7	2.000	0.2673	24.840	24.840 x1
8	2.611	0.3491	32.430	32.430 x1
9	3.305	0.4418	41.040	41.040 x1
10	4.080	0.5454	50.670	50.670 x1
11	4.937	0.6600	61.310	61.310 x1
12	5.875	0.7854	72.960	72.960 x1
14	8.000	1.0690	99.350	99.350 x1
16	10.440	1.3960	129.650	129.650 x1
18	13.220	1.7670	164.180	164.180 x1
20	16.320	2.1820	202.680	202.680 x1
22	19.750	2.6400	245.280	245.280 x1
24	23.500	3.1420	291.850	291.850 x1
26	27.580	3.6870	342.520	342.520 x1
28	32.000	4.2760	397.410	397.410 x1
30	36.720	4.9090	456.020	456.020 x1
32	41.780	5.5850	518.870	518.870 x 1
34	47.160	6.3050	585.680	585.680 x1
36	52.880	7.0690	656.720	656.720 x1

1 Gallon = 3.785 liters
1 Meter = 3.281 feet
1 Gallon water weighs 8.33 lbs. = 3.779 kilograms
1 Liter water weighs 1 kilogram = 2.205 pounds
1 Gallon per foot of depth = 12.419 liters per foot of depth
1 Gallon per meter of depth = 12.419 x 10^{-3} cubic meters per meter of depth

INITIAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 5.92'
WELL DEPTH (TD) ~~5~~ 49.63'
COLOR Brown
ODOR none
CLARITY poor

FINAL DEVELOPMENT WATER

WATER LEVEL (TOIC) 6.12
WELL DEPTH (TD) 49.64'
COLOR Clear
ODOR none
CLARITY good

DESCRIPTION OF DEVELOPMENT TECHNIQUE 2" Grundfos with Bailer to remove fines

WELL DEVELOPMENT - PARAMETER MEASUREMENTS

TIME	TOTAL VOL. WITHDRAWN		pH	COND. (µmhos/cm)	TEMP. (°C/°F)	TURB. (NTU)	COMMENTS
	GALS.	BORE VOL.					
0830	1.0		6.68	0.188	12.7	895	Brown, silty
0840	10.0		6.79	0.210	11.9	860	" "
0850	30.0		6.33	0.175	12.1	350	Lt Brown, Cloudy
0910	60.0		6.17	0.170	12.3	240	" "
0930	120.0		6.18	0.175	12.2	750	opaque, still a lot of silt
0940	140.0		6.93	0.187	12.8	750	" "
1020	220.0		6.66	0.185	13.0	250	Clear, a little milky
1100	330.0		6.71	0.187	13.0	112	Clear
1120	375		6.69	0.185	12.8	65	Clear

DEVELOPED BY: Mark Ochsner DATE 8/28/00

Borehole Record for MWR-10

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR MWR-10

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished 8/27/00

Drilling Company ~~Lockheed Martin-ESAT~~

Driller's Name ~~Woody Campbell~~

Geologist's Name ~~Reed Lyday~~ Mark Olson

Geologist's Signature Mark Olson

Rig Type (s) ~~Geoprobe~~ Failing F6DX

Drilling Method (s) ~~direct push~~ HSA

Bit Size (s) ~~2-in.~~ 6.25 ID Auger Size (s) ~~NA~~ 8.25 OD

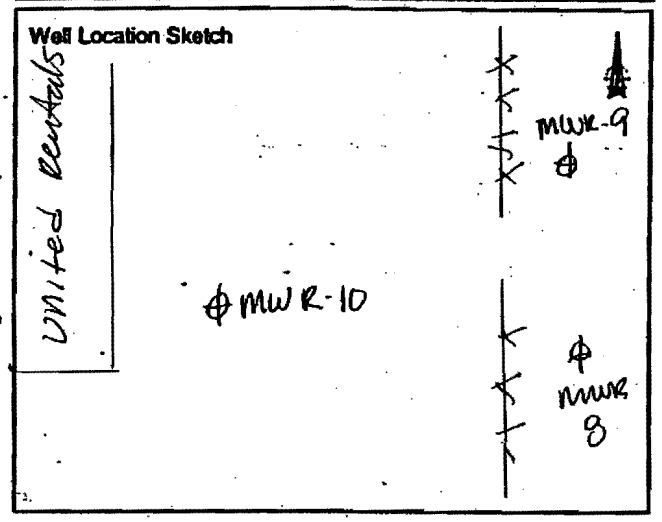
Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5	ϕ			840		ϕ		ML		Cuttings
6										
7										
8										
9										cuttings
10	ϕ			850		ϕ		GM		
11										
12										
13										
14										
15										

Lock Number _____

SCREENED WELL

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

Stick-up Ø ft

GROUND SURFACE

Top of Grout NA-+1.0 ft

Top of Seal at -1.0 ft

Top of Sand Pack 17 ft

Top of Screen at 19' ft

Bottom of Screen at 49' ft

Bottom of Hole at 50' ft

Bottom of Sandpack at 50'

Quantity of Material Used:

Bentonite Pellets (8) 50# bags

Cement (6) 50# bags

Borehole Diameter 6 1/8" inches

Cement/Bentonite Ø

Grout Ø

Screen Slot Size 0.020"

Screen Type _____

☒ PVC Uwire Cont.

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand 10-20 CGSI (37) 50# bags

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
	Surface: Gravel fill 1"-Ø	O	O	O
1		O	O	O
2		O	O	O
3		O	O	O
4	gray/brown	O	O	O
5	Silt with some sand and occassional gravel, moist,	O	O	O
6	Not saturated, no odor, no sheen. med-stiff, some	O	O	O
7	mottling (orange) Fe-rich. weathered soil.	O	O	O
8		O	O	O
9		O	O	O
10	Silty Gravel, moist, occassional f-m sand, no odor	O	~~O~~	O
11	no sheen. med dense, some Fe staining	O	O	O
12		O	O	O
13		O	O	O
14	Gravel, with silt, ~~well~~ mod graded gravel sand & silt	O	O	O
15	No odor very hard drilling, some cementation in gravels	O	O	O

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Com
16											
17											
18											
19											
20	MWR 10-20	12/40/46	30/30/20/20		9:15		1.0		GM		
21			ϕϕϕϕ8ϕ35ϕ								
22											
23											
24											
25	MWR 10-25	12/40/4	<10/10/70/10		9:38		1.5		SP		
26			ϕϕϕϕ8ϕ35								
27											
28											
29											
30	MWR 10-30	12/30/60	<5/10/40/46		10:15		1.0		GP		
31											
32											
33											
34											
35	MWR 10-35	12/26/44	5/10/40/35		10:32		0.8		GP		
36			ϕϕϕϕ8ϕ352								
37											
38											
39											
40	MWR 10-40	12/27/44	5/10/40/40		10:40		1.2		GP		
41											
42											
43											
44											
45											

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16		O	O	O
17		O	O	O
18		O	O	O
19		O	O	O
20		O	O	O
21	Gravel, Brown with orange & gray mottling in silt matrix, dense to hard, cementation in gravels, no odor, wet but not fully saturated. Highly weathered soil. Gravel is rounded to subrounded clasts. mod graded	O	O	⊗
22		O	O	O
23		O	O	O
24		O	O	O
25		O	O	O
26	Sand with some gravel, poorly graded, occassional 1" rounded to subrounded gravel, layers 1" to 2" cemented, no saturation in cemented zones, otherwise saturated. Sand is poorly graded, f-m grained, highly weathered, pred. quartz & k-spar. med. dense to hard.	O	O	⊗
27		O	O	O
28		O	O	O
29		O	O	O
30		O	O	O
31	As above, cemented gravel, hard drilling.	O	O	O
32		O	O	O
33		O	O	O
34		O	O	O
35		O	O	O
36	Sandy Gravel, poorly graded, some silt (<10-15%), wet, Brown. Sand is poorly graded f-m grained, less cementation, pred. quartz & k-spar, med dense to hard. Occassional fine gravel, rounded to subrounded.	O	O	⊗
37		O	O	O
38		O	O	O
39		O	O	O
40		O	O	O
41	As above, wet.	O	O	⊗
42		O	O	O
43		O	O	O
44		O	O	O
45		O	O	O

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46	MWR 10-45	10/17/25	<5/5/40/50		11:00				GP		
47											
48									ML		
49											
50	MWR 10-50	16/12/16	50/50/0/0		11:10				ML		
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46		O	O	O
47	Gravel, Brown, Gravel, sand, silt Mix. less cemented,	O	O	O
48	Mod. weathered	O	O	O
49		O	O	O
50	Blue gray silt w/ fine sand, moist, not saturated.	O	O	O
51	Silt is massive, competent. occ. wood fragments.	O	O	O
52	Boring terminated at 51.5' bgs.	O	O	O
53		O	O	O
54		O	O	O
55		O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75		O	O	O

Borehole Record for MWR-11

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MWR11

Project Name Hamilton/Labree

Site Location Chehalis, WA

Date Started/Finished

Drilling Company ~~Lockheed Martin-ESAT~~

Driller's Name ~~Woody Campbell~~

Geologist's Name ~~Reed Lyday~~

Geologist's Signature

Rig Type (s) ~~Geoprobe~~

Drilling Method (s) ~~direct push~~

Bit Size (s) ~~2 in.~~ Auger Size (s) NA

Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler	Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1										
2										
3										
4										
5										
6								ML		
7										
8										
9										
10	MWR 11-10	16/40/47		5/10/30/50	1455			GM		
11								GP		
12										
13										
14										
15										

SCREENED WELL

Stick-up Ø ft

Top of Grout Ø ft

Top of Seal at -1.0 ft

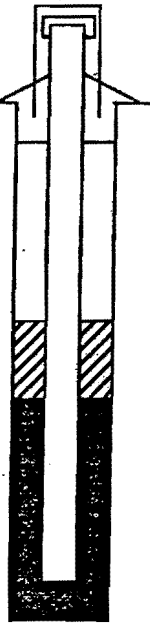
Top of Sand Pack 16 ft

Top of Screen at 19 ft

Bottom of Screen at 5049 ft

Bottom of Hole at 50 ft

Bottom of Sandpack at 50



Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

GROUND SURFACE

Quantity of Material Used:

Bentonite Pellets 10 bags 50#

Cement 6 Bags 50#

Borehole Diameter Ø6 7/8 inches

Cement/Bentonite Ø

Grout Ø

Screen Slot Size 0.020"

Screen Type _____

☒ PVC U wire cont.

☐ Stainless Steel ____

Pack Type/Size:

☒ Sand 10-20 CSE (40) 50# bags

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	Dark Brown Silt, med stiff, moist, no odor, no sheen.	○	⊘	○
6	Occassional rounded gravel.	○	○	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11	Silty Gravel with f-m sand, poorly graded,	○	○	○
12	moist, not saturated. med dense to dense.	○	○	○
13	no odor, no sheen.	○	○	○
14		○	○	○
15		○	○	○

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Con
16	MWR 11-15	16/22/40	20/10/30/40 ΦΦΦ8Φ36Φ		15:20		1.5		GM		
17											
18											
19											
20	MWR 11-20	24/30/37	20/10/30/50		15:30		1.5		GM		
21											
22											
23											
24											
25	MWR 11-25	16/27/32	20/10/60/30 ΦΦΦ8Φ361		1540		1.5		SP		
26											
27											
28											
29											
30	MWR 11-30	22/30/45	20/10/40/30		1550		1.5		GP		
31											
32											
33											
34											
35	MWR 11-35	24/60/40	10/10/40/40 ΦΦΦ8Φ362		16:00		1.5		GP		
36											
37											
38											
39											
40	MWR 11-40	24/30/47	15/10/30/45		1620		1.5		GP		
41											
42											
43											
44											
45											

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	Silty Sandy Gravel, Brown, moist, <10-22% Silt, poorly graded, no odor. Gravel is subrounded 1-2" clasts in a silty sand matrix, med dense to dense		X	
17				
18				
19				
20				
21	Silty Sandy Gravel, Brown, moist-wet, cemented! poorly graded, mod. to highly weathered matrix. Gravel is subrounded to rounded clasts in a silt sand matrix. no odor		X	X
22				
23				
24				
25				
26	Gravelly Sand, moist-wet, Brown, Highly weathered sand & gravel mix, Fe staining, cemented in 1" layers at 25'. no odor		X	
27				
28				
29				
30				
31	Silty Sandy Gravel, Brown, subrounded gravel 1-1½" in a silty sand matrix, poorly graded, weathered, moist-wet. no odor			X
32				
33				
34				
35				
36	As Above, cemented gravel, wet or saturated			X
37				
38				
39				
40				
41	As Above, wet, no odor			X
42				
43				
44				
45				

Depth(feet)	Sample Number	Blows on Sampler	Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46			10/10/30/50								
	MWR 11-45	22/36/48			16:50		1.5		GP		
47											
48											
49											
50	MWR 11-50	16/12/12	90/10/T/T		17:00		1.5		ML		
51											
52											
53											
54											
55											
56											
57											
58											
59											
60											
61											
62											
63											
64											
65											
66											
67											
68											
69											
70											
71											
72											
73											
74											
75											

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	Silty Sandy Gravel, Brown, wet, no odor,			✓
47	Some cementation, highly weathered sand			
48	matrix, gravel is rounded to subrounded in			
49	a silty sandy matrix, dense to hard.			
50				
51	Silt w/fine sand, Blue-gray, stiff to very stiff,		✓	
52	no odor, moist - not saturated. occassional			
53	wood fragments in silt. Lacustrine? Silt			
54	is competent.			
55	Boring terminated at 51.5' bgs.			
56				
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for AB-12

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

[redacted]

DRILLING LOG FOR AB-12

Project Name: Hamilton/Labree

Site Location: Chehalis, WA

Date Started/Finished:

Drilling Company: ~~Lockheed Martin - ESAT~~ Geotech

Driller's Name: ~~Woody Campbell~~

Geologist's Name: ~~Reed Lyday~~ Ryan Whitchurch

Geologist's Signature:

Rig Type (s): ~~Geoprobe~~ CME

Drilling Method (s): ~~direct push~~ HSA

Bit Size (s): 2-in. Auger Size (s): ~~N/A~~

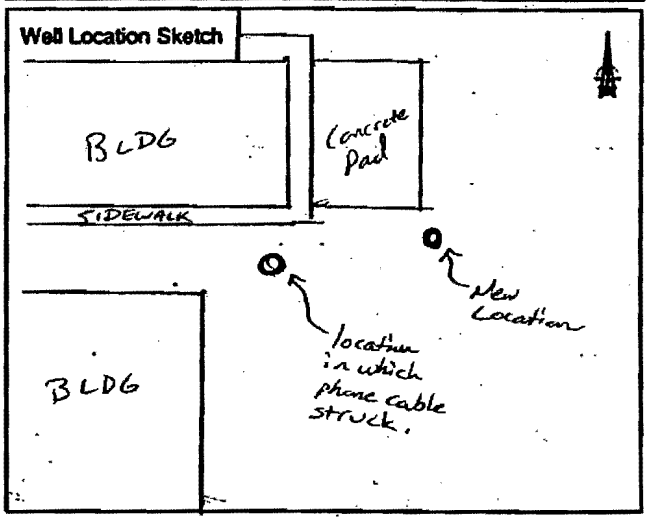
Auger/Split Spoon Refusal:

Total Depth of Borehole Is:

Total Depth of Corehole Is: NA

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch



Depth(Feet)	Sample Number	Blows on Sampler		Soil Components Rock Profile CL SL S GR	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1											
2											
3											
4											
5											
6	NA	8 / 13	9 / X	ML	1725	SPT #1	95%			NR	SPT = 5-6.5 feet. * Phone cable (multi-strand sheathed) cut. Possibly cut a datalink line as well. Moving to new location.
7											
8											
9											
10											
11	NA	~~8/13~~ 14/X		14/43 44/x	SP/GR	1854	SPT #2	75%		NR	SPT = ~~5.0-6.5 ft~~ 10.0-11.5 ft. End of drilling today.
12											
13											
14											
15											

SCREENED WELL

Lock Number _____

Inner Casing Material _____

Inner Casing Inside Diameter ____ inches

Stick-up _____ ft

GROUND SURFACE

Top of Grout _____ ft

Top of Seal at _____ ft

Top of Sand Pack _____ ft

Top of Screen at _____ ft

Bottom of Screen at _____ ft

Bottom of Hole at _____ ft

Bottom of Sandpack at _____

Quantity of Material Used:

Bentonite Pellets _____

Cement _____

Borehole _____ inches Diameter

Cement/ Bentonite _____

Grout _____

Screen Slot Size _____

Screen Type _____

☐ PVC _____

☐ Stainless Steel _____

Pack Type/Size:

☐ Sand _____

☐ Gravel _____

☐ Natural _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Outer Casing Diameter _____ inches

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Outer Casing _____ ft

Bottom of Inner Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 136 and 137 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5		○	○	○
6	Sandy Silt – Brown, stiff, dry, sandy (10-20% fine),	⊗	○	○
7	silt. Contains ~10% clay in addition.	⊗	○	○
8	Mottled rust-colored staining (oxidation?)	○	○	○
9		○	○	○
10		○	○	○
11	Sandy Cobble – Brown, wet, silty, loose sand matrix; Large	○	○	⊗
12	gravel to cobbles occupy most of sample volume	○	○	⊗
13	(gravel, cobbles are basalt).	○	○	○
14	Boring terminated at ~14' due to refusal.	○	○	○
15		○	○	○

Borehole Record for MW-11

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW-11

Project Name HAMILTON LABREE PHASE III REMOVAL ASSESSMENT

Site Location CHEHALIS, WA

Date Started/Finished 1/29/01 - 1/29/01

Drilling Company GEOTECH EXPLORATIONS, INC

Driller's Name JOEL WELSH

Geologist's Name MARK LONGTINE

Geologist's Signature ~~JOEL WELSH~~

Rig Type (s) MOBILE B-59

Drilling Method (s) HOLLOW-STEM AUGER

Bit Size (s) 9" Auger Size (s) 8"

Auger/Split Spoon Refusal N/A

Total Depth of Borehole Is 51.5'

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch
APPROX 100' N. OF OUTFALL

Depth(Feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm) PID	Comments
1												
2												
3												
4												
5												
6		3	4	ML		1435		100%			0	2 4-oz JARS
7		6										
8												
9												
10												
11		13	14	GM		1440		100%				
12		13										
13												DRILLER ESTIMA WATER DEP
14												12.5' BGS

1/2 2051 1580S

MW-11

Stick-up FLUSH MOUNTED ft

SCREENED WELL

Inner Casing Material PVC SCH 40

Inner Casing Inside Diameter 2 inches

Top of Grout _____ ft

Borehole _____ inches Diameter _____ ft

Top of Seal at _____ ft

Bottom of Seal at 25

Top of Screen at 27 ft

Pack Type/Size:
- [x] Sand 10-20
- [ ] Gravel _____
- [ ] Natural _____

Bottom of Screen at 47 ft

6" SUMP

Lock Number _____

GROUND SURFACE

25
27
47
47.5
51.5

Quantity of Material Used:
Bentonite CHIPS
Pellets HOLEPLOG 25' TO SURFACE

Cement _____

Cement/ Bentonite _____

Grout HOLEPLOG BENTONITE CHIPS

Top of Sand Pack 25

Screen Slot Size 0.02

Screen Type SLOTTED
- [x] PVC 0.02"
- [ ] Stainless Steel _____

Bottom of Hole at 51.5 ft

Bottom of Sandpack at 47

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Top of Grout _____ ft

Bottom of Outer Casing _____ ft

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Grout/ Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 109 and 110 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	SILT AND CLAY, BROWNISH GRAY WITH RUSTY AND BROWN MOTTLING, WITH SOME SAND AND GRAVEL TO 1", MOIST MINOR ORGANICS	○	⊗	○
6		○	⊗	○
7		○	○	○
8		○	○	○
9		○	○	○
10	GRAVEL AND SAND WITH SILT AND CLAY MATRIX. GRAVEL SUB-ROUNDED TO 2". IRON STAINING IN SAND AND GRAVEL CLASTS. SILT AND CLAY GRAYISH BROWN.	○	⊗	○
11		○	⊗	○
12		○	○	○
13				
14		○	○	○
		○	○	○

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1005 2 1158 15		7	28	GM/GP		1500		100%				
		40										
17												
18												
19												
20		?		GM/GP		1510		100%				
21												
22												
23												
24												
25		22	50(9½")	GM		1510		60%				
26												
27												
28												
29												
30		4	4	GP/GM		1520		100%				
31		10										
32												
33												
34												
35		12	15	GP/GM		1530		100%				
36		16										
37												
38												
39												
40		50(5")		GM		1545		50%				
41												
42												
43												
44												

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION MW-11	Moisture Content: Dry	Moist	Wet
16	SAND AND GRAVEL WITH SILT AND CLAY. SAND FINE TO			
17	COARSE, ANGULAR TO SUB-ROUNDED, GRAVEL SUBROUNDED TO >2", SILTY, CLAYEY MATRIX (< 10%) BROWN, WET			X
18				
19				
20	SAND AND GRAVEL WITH SOME SILT AND CLAY, AS ABOVE, WET			X
21				X
22				
23				
24				
25	SAND AND GRAVEL WITH SILT AND CLAY (~ 20%). SAND FINE TO			X
26	COARSE, ANGULAR TO SUB-ROUNDED, GRAVEL TO 2" SUBROUNDED, SILT AND CLAY BROWN. WET			X
27				
28				
29				
30	SAND AND GRAVEL WITH < 10% SILT/CLAY. SAND FINE TO			X
31	COARSE, GRAVEL SUB-ROUNDED TO 1½". SILT + CLAY BROWN. WET			X
32				
33				
34				
35	SAND AND GRAVEL WITH < 10% BROWN SILT/CLAY, AS ABOVE,		X	
36	WET		X	
37				
38				
39				
40	SAND AND GRAVEL WITH ~20% BROWN SILT/CLAY. SAND FINE TO			X
41	COARSE, GRAVEL TO 1" SUB-ANGULAR TO SUB-ROUNDED, WET			X
42				
43				
44				

MW-11

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46												
47				GM		1555		80%				
48												
49												
50		10	12									
51	D1006 115B50	14		ML		1605		100%				
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

MW-11

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	SAND AND GRAVEL IN COMPACT DENSE SILTY/CLAYEY MATRIX. SAND FINE TO V. COARSE, ANGULAR. GRAVEL SUBANGULAR TO SUB ROUNDED TO 1½".			
47	MOIST (IN FINE-RICH ZONES) TO WET. BROWN			
48				
49				
50	SILTY CLAY WITH SOME VERY FINE SAND, BLUISH GRAY,			
51	~~DENSE, FRIABLE, MOIST. DRILLER REPORTED DRILLING~~ IN THIS FROM ~47'			
52				
53				
54				
55	T.D. 51.5' BGS (SAMPLE DEPTH). INSTALLED			
56	2" I.D. MONITORING WELL PER SAMPLING PLAN			
57	AND SPECIFICATIONS INDICATED ON p.43 OF GEOLOG.			
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for MW12

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW12

Project Name HAMILTON LABREE PHASE III REMOVAL ASSESSMENT

Site Location CHEHALIS, WA

Date Started/Finished 1/30/01 - 1/30/01

Drilling Company OROTECH EXPLORATIONS, INC.

Driller's Name JOEL WELSH

Geologist's Name MARK LONGTINE

Geologist's Signature [signature]

Rig Type (s) MOBILE B59

Drilling Method (s) HOLLOW STEM AUGER

Bit Size (s) 9" Auger Size (s) 8"

Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

10' N. OF CULVERT

Depth(Feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm) PID	Comments
1												
2												
3												
4												
5		3	4	ML		0835		100%			0	
6		5										
7												
8												
9												
10		2	6	~~SM~~ ML		0840		100%			0	
11		22										
12												
13												
14												

010062
125805

MW 12

Stick-up FLUSH MOUNTED ft

SCREENED WELL

Inner Casing Material 2" SCH. 40 PVC

Inner Casing Inside Diameter 2 inches

Top of Grout 2 ft

Borehole Diameter _____ inches _____ ft

Top of Seal at _____ ft

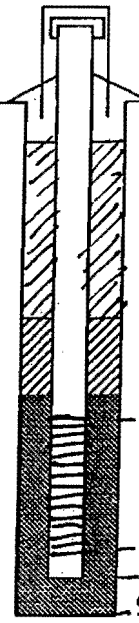
Bottom of Seal at _____

Top of Screen at 29 ft

Pack Type/Size:
- [x] Sand 10-20
- [ ] Gravel _____
- [ ] Natural _____

Bottom of Screen at 49 ft

Lock Number _____



Quantity of Material Used:

Bentonite Pellets CHIPS (HOLEPLUG)

Cement _____

Cement/ Bentonite _____

Grout 27' - 2' BGS

Top of Sand Pack 27

Screen Slot Size 0.02

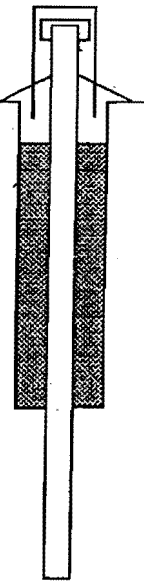
Screen Type SLOTTED

- [x] PVC 2"
- [ ] Stainless Steel _____

Bottom of Hole at 50.5 ft

Bottom of Sandpack at 50.5

OPEN-HOLE WELL



Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Top of Grout _____ ft

Bottom of Outer Casing _____ ft

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Grout/ Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 109 and 110 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	⊙	○
2		○	○	○
3		○	○	○
4		○	○	○
5	SILT AND CLAY WITH SOME SAND AND PEBBLES (MINOR): GRAY WITH	○	⊗	○
6	RUSTY BROWN MOTTLING, MOIST	○	⊗	○
7		○	○	○
8		○	○	○
9		○	○	○
10	SILTY CLAYEY SAND AND SANDY SILT/CLAY WITH MINOR	○	○	○
11	PEBBLES. SAND FINE TO MED GRAINED. RUSTY BROWN AND	○	⊗	○
12	GRAY WITH RUSTY BROWN MOTTLING, MOIST	○	⊗	○
13				
14		○	○	○
		○	○	○

MW12

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16		1	17	SP/GP		0900		100%			0	
		11										
17												
18												
19												
20		8	14	SW/GM								
21		21				0900		80%			0	
22												
23												
24												
25		16	15	GM		0915		60%			0	
26		25										
27												
28												
29												
30				GM		1010		100%			0	
31												
32												
33												
34												
35		50	(4")	GM		1035		50%			0	
36												
37												
38												
39												
40		50	(2")	GM		1045		40%			0	
41												
42												
43												
44												

1 00 ft
, 125 BIS

MW12

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION MED (MD) COARSE (MD)	Moisture Content Dry	Moist	Wet
16	WET SAND, FINE TO MED GRAINED, SUB-ANGULAR, WITH SOME BROWN FINES, OVERLYING GRAVEL WITH SOME SAND AND BROWN FINES, GRAVEL TO 1" SUB-ROUNDED	O	O	X
17		O	O	X
18		O	O	O
19		O	O	O
20	GRAVEL WITH SAND AND < 10% BROWN FINES, GRAVEL TO ½", SAND FINE TO COARSE OVERLYING GRAVEL WITH UP TO 20% BROWN FINES AND SAND, GRAVEL TO 3/4" WET	O	O	O
21		O	O	X
22		O	O	O
23		O	O	O
24		O	O	O
25	GRAVEL, SUB-ROUNDED, TO > 2" WITH FINE TO COARSE SAND. AND BROWN FINES TO 20%, WET	O	O	X
26		O	O	X
27		O	O	O
28		O	O	O
29		O	O	O
30	SAND AND GRAVEL WITH FINES TO 20%. GRAVEL TO 1½", SUB ROUNDED, SAND FINE TO COARSE, BROWN WET	O	O	X
31		O	O	O
32		O	O	O
33		O	O	O
34		O	O	O
35	GRAVEL WITH SAND AND BROWN FINES. GRAVEL TO 3/4" SUB-ANGULAR TO SUB ROUNDED, SAND FINE TO COARSE, ANGULAR, BROWN FINES ~20%, WET	O	O	X
36		O	O	X
37		O	O	O
38		O	O	O
39		O	O	O
40	GRAVEL WITH SAND AND BROWN FINES. GRAVEL TO 1" SUB-ANGULAR TO SUB-ROUNDED, SAND MOSTLY FINE TO MED, BROWN FINES LOCALLY UP TO 50%, WET.	O	X	X
41		O	X	X
42		O	O	O
43		O	O	O
44		O	O	O

MW12

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46		50	(5")	GM		1100		40%			0	
47												
48		2	12	GM		1105		80%			0	
		21										
49		24	27	ML		1120		100%			0	
50		30										
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

210065
012589

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46	GRAVEL WITH SAND AND FINES. GRAVEL SUB-ANG TO			⊗
47	SUB ROUNDED TO 1", SAND FINE TO V. COARSE, ANGULAR, FINES, BROWN, 15%, WET			⊗
48	AS ABOVE			⊗
49	FINE SANDY SILTY CLAY / CLAYEY SILT, GRAYISH BROWN WITH			⊗
50	RUSTY MOTTLING (49.0 - 49.8') OVERLYING FINE SANDY SILTY CLAY / CLAYEY SILT, BLUISH GRAY WITH SOME ORGANIC		⊗	
51	MATTER LOCALLY, MOIST		⊗	
52				
53	T.D. = 50.5' BGS			
54	INSTALLED 2" MONITORING WELL PER SAMPLING			
55	PLAN AND SPECIFICATIONS ON p. 43 OF THIS			
56	GEOTECH LOG.			
57	- INSTALLED BENTONITE GROUT FROM SANDPACK TOP TO			
58	SURFACE INSTEAD OF USING BENTONITE CHIPS AS			
59	SPECIFIED IN SAMPLING PLAN AND SCOPE OF WORK			
60	BECAUSE OF DIFFICULTIES EXPERIENCED DURING PLACEMENT			
61	OF SANDPACK (BRIDGING).			
62				
63	1/31/01 PER DRILLER, THE BENTONITE GROUT SETTLED			
64	ONLY A FEW INCHES OVERNIGHT PRIOR TO COMPLETING			
65	WELL THIS MORNING.			
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for MW13

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW13

Project Name HAMILTON LABREE PHASE III REMOVAL ASSESSMENT

Site Location CHEHALIS, WA

Date Started/Finished 1/30/01 & 1/31/01

Drilling Company GEOTECH EXPLORATIONS, INC.

Driller's Name JOEL WELSH

Geologist's Name MARK LONGTINE

Geologist's Signature [signature]

Rig Type (s) MOBILE B-59

Drilling Method (s) HOLLOW STEM AUGER

Bit Size (s) 9" Auger Size (s) 8"

Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
1												
2												
3												
4												
5												
6		2	3	ML		1455		100%			—	
		4										
7												
8												
9												
10						1500						
11		6	10	ML				100%				
		12										
12												
13												
14												

MW13

Stick-up FLUSH MOUNTED ft

SCREENED WELL

Inner Casing Material PVC SCH. 40

Inner Casing Inside Diameter 2 inches

Top of Grout _____ ft

Borehole _____ Inches Diameter _____ ft _____

Top of Seal at _____ ft

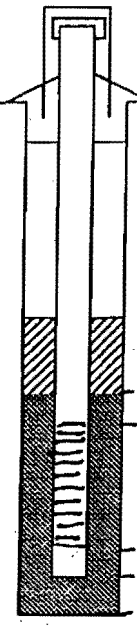
Bottom of Seal at _____

Top of Screen at 28.8 ft

Pack Type/Size:
- ☒ Sand 10 - 20
- ☐ Gravel _____
- ☐ Natural _____

Bottom of Screen at 48.8 ft

Lock Number _____



GROUND SURFACE

Quantity of Material Used:
Bentonite CHIPS (HOLEPLUG)
Pellets 26.8' TO SURFACE

Cement _____

Cement/Bentonite _____

Grout _____

26.8 Top of Sand Pack 26.8

28.8 Screen Slot Size 0.02

Screen Type SLOTTED
- ☒ PVC 2"
- ☐ Stainless Steel _____

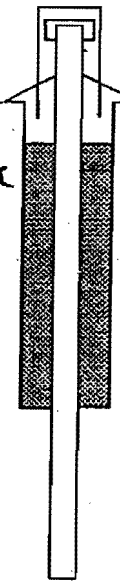
48.8

49.3

50.5 Bottom of Hole at 50.5 ft

Bottom of Sandpack at 50.5

OPEN-HOLE WELL



Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ Inches

Top of Grout _____ ft

Bottom of Outer Casing _____ ft

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Grout/ Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 109 and 110 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	SILTY CLAY, GRAY WITH BROWN MOTTLING AND PLANT ROOTS	○	⊗	○
6	MOIST	○	⊗	○
7		○	○	○
8		○	○	○
9		○	○	○
10	SILTY CLAY GRADING DOWN THROUGH CLAYEY SILT TO SILTY, CLAYEY	○	⊗	○
11	SAND (MED). GRAY WITH ABUNDANT RUSTY BROWN MOTTLING	○	⊗	○
12	MOIST	○	○	○
13				
14		○	○	○
		○	○	○

MW13

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
16	.0066 .135815	21	22	GM		1510		60%				
		26										
17												
18												
19												
20	.0067 .135820	16	10	GM SM		1525		75%				
		8										
22												
23												
24												
25		39	50(4")			1530		0%				
26												
27												
28												
29												
30		5	10	GM		1540		70%				
31		12										
32												
33												
34												
35		7	10	GM		1550		100%				
36		20										
37												
38												
39												
40				GM		1640		50%				
41												
42												
43												
44												

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION MW13	Moisture Content Dry	Moist	Wet
	GRAVEL WITH SOME SAND AND FINES (~10% FINES)	O	O	O
16	GRAVEL TO > 2", SUB ANGULAR TO SUBROUNDED, V. MOIST TO WET	O	O	⊗
17		O	O	O
18		O	O	O
19		O	O	O
20	GRAVEL TO > 2" WITH SAND AND BROWN SILT OVERLYING	O	O	⊗
21	SILTY SAND, MED. GRAINED, BROWN	O	O	⊗
22		O	O	O
23		O	O	O
24		O	O	O
25	NO RECOVERY	O	O	O
26		O	O	O
27		O	O	O
28		O	O	O
29		O	O	O
30	GRAVEL WITH SAND AND BROWN FINES (UP TO 20% LOCALLY).	O	O	⊗
31	GRAVEL UP TO > 2", ANGULAR TO SUB-ROUNDED, SAND FINE TO V. COARSE, ANGULAR, WET	O	O	⊗
32		O	O	O
33		O	O	O
34		O	O	O
35	GRAVEL WITH SAND AND BROWN FINES (~10%). GRAVEL	O	O	⊗
36	MOSTLY < 1/2" BUT SOME > 2". SAND FINE TO V. COARSE. SAND & GRAVEL ANGULAR TO SUB-ROUNDED. WET	O	O	⊗
37		O	O	O
38		O	O	O
39		O	O	O
40	GRAVEL WITH SAND AND BROWN FINES (UP TO 30% LOCALLY).	O	⊗	O
41	GRAVEL TO 3/4", ANGULAR TO ROUNDED, SAND FINE TO V. COARSE, BROWN FINES, WET	O	⊗	O
42		O	O	O
43		O	O	O
44		O	O	O

MW13

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46		11	32	GM	ML	1650		80%				
		50	(44)	GM								
47												
48												
49		12	15	ML		1705		100%				DRILLING SMOOTHER AT ~48.8 FT
50		17										
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

,10068
13SB49

MW13

NARRATIVE LITHOLOGIC DESCRIPTION

Depth (feet)	Narrative Lithologic Description	Moisture Content: Dry	Moist	Wet
46	GRAVEL WITH SAND AND BROWN FINES. GRAVEL TO 3/4" SUB ROUNDED TO ANGULAR. BROWN FINES TO 30%.			⊗
47	THIN (~2") GRAY CLAY/SILT LAYER. WET (EXCEPT SILT/CLAY LAYER)			⊗
48				
49	SILTY CLAY, BROWNISH GRAY WITH RUSTY MOTTLING AND GRAYISH BROWN (10") OVERLYING CLAYEY SILT			
50	WITH SOME V. FINE SAND, BLUISH GRAY, MOIST		⊗	
51			⊗	
52				
53				
54	T.D. = 50.5 FEET BGS. SECURE BOREHOLE			
55	OVERNIGHT WITH DRILL RIG.			
56	1/31/01 WELL COMPLETED PER SAMPLING PLAN AND			
57	SPECIFICATIONS RECORDED ON P. 43 OF THIS LOG.			
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

Borehole Record for MW14

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW14

Project Name HAMILTON LABREE PHASE III REMOVAL ASSESSMENT

Site Location CHEHALIS, WA

Date Started/Finished 1/31/01 - 1/31/01

Drilling Company GEOTECH EXPLORATIONS, INC

Driller's Name JOEL WELSH

Geologist's Name MARK LONATINE

Geologist's Signature [signature]

Rig Type (s) MOBILE B-59

Drilling Method (s) HOLLOW STEM AUGER

Bit Size (s) 9" Auger Size (s) 8"

Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	~~HNu/OVA~~ (ppm) PID	Comments
1												
2												
3												
4												
5												
6		1	2	ML		0920		100%			0	
		2										
7												
8												
9												
10												
11		2	3	ML		0930		100%			0	
		4										
12												
13												
14												

MW14

Stick-up FLUSH MOUNTED ft

SCREENED WELL

Inner Casing Material PVC SCH. 40

Inner Casing Inside Diameter 2 inches

Top of Grout _____ ft

Borehole _____ inches Diameter _____ ft _____

Top of Seal at _____ ft

Bottom of Seal at _____

Top of Screen at 28.5 ft

Pack Type/Size:
- [x] Sand 10-20
- [ ] Gravel _____
- [ ] Natural _____

Bottom of Screen at 48.5 ft

Lock Number _____

GROUND SURFACE

Quantity of Material Used:
Bentonite CHIPS
Pellets HOLEPLUG 26.5' TO SURFACE
Cement _____
Cement/Bentonite _____
Grout _____
Top of Sand Pack 26.5
Screen Slot Size 0.02
Screen Type SLOTTED
- [x] PVC 2"
- [ ] Stainless Steel _____

Bottom of Hole at 50.0 ft

Bottom of Sandpack at 50.0

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches

Top of Grout _____ ft

Bottom of Outer Casing _____ ft

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/Grout/Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 109 and 110 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1				
2				
3				
4				
5	GRAY CLAYEY SILT / SILTY CLAY WITH LOCAL BROWN MOTTLING		X	
6	AND ORGANIC MATTER		X	
7				
8				
9				
10	CLAYEY SILT / SILTY CLAY WITH MINOR SAND (1" LAYER) MED.		X	
11	GRAY WITH RUSTY BROWN MOTTLING TO RUSTY BROWN WITH		X	
12	MINOR GRAY AREAS.			
13				
14				

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm) PID	Comments
16		16	21	GM		0935		60%			0	
		33										
17												
18												
19												
20		14	23	GM		0950		80%			0	
21		25										
22												
23												
24												
25		13	19	GM		1005		75%			0	
26		40										
27												
28												
29												
30		12	50(6")	SP		1020		70%			—	PID MALFUNCTIONING
31				GW								
32												
33												
34												
35		50	(6")	GM		1035		80%				
36				SP								
37												
38												
39												
40		16	32	GM		1045		100%				
41		50										
42												
43												
44												

MW14

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
16	GRAVEL TO >2" WITH SOME FINES AND SAND. MOSTLY			X
17	GREENISH GRAY ROCK FRAGMENTS. GREENISH GRAY SAND AND FINES V. MOIST TO WET.			X
18				
19				
20				
21	GRAVEL WITH SAND AND FINES. GRAVEL TO >2". SAND AND FINES TO 50% (TOTAL FOR SAND AND FINES). YELLOWISH BROWN TO RUSTY BROWN. WET			X
22				X
23				
24				
25				
26	GRAVEL WITH SAND AND BROWN FINES. GRAVEL TO >2", SUB-ANGULAR TO SUB-ROUNDED. SAND, MOSTLY MED GRAINED RANGING FINE TO V-COARSE, FINES TO 15%, WET			X
27				X
28				
29				
30				
31	SAND, MED TO COARSE, ANGULAR TO SUB-ANGULAR, MINOR BROWN FINES (9") OVERLYING MIXED GRAVEL, SAND, AND BROWN FINES. GRAVEL TO > 2", SAND FINE TO COARSE, FINES < 10%.			X
32				X
33				
34				
35				
36	MIXED GRAVEL (TO ½", SUB-ANGULAR TO SUB-ROUNDED), SAND, (FINE TO COARSE) AND BROWN FINES (TO 20%) OVERLYING SAND WITH MINOR GRAVEL TO ¼" AND < 10% BROWN FINES.			X
37				X
38				
39				
40				
41	GRAVEL WITH SAND AND FINES. GRAVEL TO 1", SUB-ANGULAR TO ROUNDED, SAND FINE TO COARSE, FINES BROWN AND ORANGE BROWN UP TO 20% V. MOIST		X	X
42			X	
43				
44				

MW14

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	PID ~~HNu/OVA~~ (ppm)	Comments
46		50	(5 1/2")	GM		1055		40%				—
47												
48												—
49		12	16	ML		1105		100%				
50		20										
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

10071
45B49

MW14

Depth(feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	GM AS ABOVE EXCEPT WET	O	O	⊗
47		O	O	⊗
48		O	O	O
49	SILTY CLAY, BROWNISH GRAY WITH RUSTY BROWN	O	O	O
50	MOTTLING OVERLYING SILT/CLAY WITH MINOR V. FINE SAND, BLUISH GRAY, IN CUTTING SHOE (2")	O	⊗	O
51		O	⊗	O
52	T.D. = 50.0 FEET BGS.	O	O	O
53	DRILLERS INSTALLED MONITORING WELL IN ACCORDANCE	O	O	O
54	WITH THE SAMPLING PLAN AND SPECIFICATIONS	O	O	O
55	RECORDED ON P. 43 OF THIS LOG	O	O	O
56		O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75		O	O	O

Borehole Record for MW15

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW15

Project Name HAMILTON LABREE PHASE III REMOVAL ASSESSMENT

Site Location CHEHALIS WA

Date Started/Finished 1/31/01 - 1/31/01

Drilling Company GEOTECH EXPLORATIONS, INC.

Driller's Name JOEL WELSH

Geologist's Name MARK LONGTINE

Geologist's Signature [signature]

Rig Type (s) MOBILE B-59

Drilling Method (s) HOLLOW STEM AUGER

Bit Size (s) 9" Auger Size (s) 8"

Auger/Spfit Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm) PID	Comments
1												
2												
3												
4												
5		2	4	CL		1300		100%			—	PID NOT FUNCTIONING
6		5		ML								
7												
8												
9												
10												
11		6	8	GM		1310		100%			—	
12		10										
13												
14												

MW 15

Stick-up FLUSH MOUNTED ft

SCREENED WELL

Inner Casing Material PVC SCHED 40

Inner Casing Inside Diameter 2 Inches

Top of Grout _____ ft

Borehole Diameter _____ Inches _____ ft

Top of Seal at _____ ft

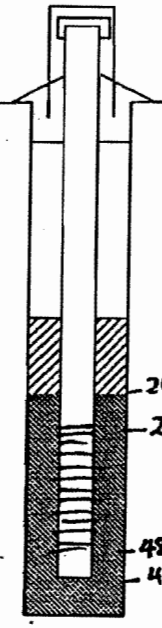
Bottom of Seal at _____

Top of Screen at 28 ft

Pack Type/Size:
- ☒ Sand 10-20
- ☐ Gravel _____
- ☐ Natural _____

Bottom of Screen at 48.0 ft

Lock Number _____



GROUND SURFACE

Quantity of Material Used:
Bentonite CHIPS
Pellets HOLEPLUG 26.0 FT TO SURFACE
Cement _____
Cement/Bentonite _____
Grout _____

26.0 Top of Sand Pack 26.0

28.0 Screen Slot Size 0.02

Screen Type SLOTTED
☒ PVC SCH 40
48.0 ☐ Stainless Steel _____

48.6

Bottom of Hole at 50.5 ft

Bottom of Sandpack at 50.5

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ Inches.

Top of Grout _____ ft

Bottom of Outer Casing _____ ft

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Grout/ Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 109 and 110 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
1		○	⊙	○
2		○	○	○
3		○	○	○
4		○	○	○
5	BLUISH GRAY CLAY GRADING DOWN TO SILTY CLAY/CLAYEY SILT,	○	○	○
6	GRAY WITH RUSTY BROWN MOTTLING AND MINOR FINE SAND	○	⊗	○
7		○	⊗	○
8		○	○	○
9		○	○	○
10		○	○	○
11	PREDOMINANTLY SILTY CLAY AND CLAYEY SILT, WITH SOME	○	⊗	○
12	SAND AND PEBBLES (TO 1"). GRAY WITH RUSTY BROWN	○	⊗	○
13	MOTTLING	○	○	○
14		○	○	○
		○	○	○

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
15	.0072 15SB15			GM		1330		80%				
17												
18												
19												
20	15SB20 (SIEVE)											
21	.0073	18	22	GM		1345		100%				SIEVE ANALYSIS 2 4oz
22	.0084 (HYDROMETER)	25										HYDROMETER 2 4oz
23												
24												
25	.0073 15SB25	11	21	SM		1500		100%				
26		42										
27												
28												
29												
30		12	17	SP		1505		100%				
31		21										
32												
33												
34												
35		14	50 (4½")									
36						1515		60%				
37												
38												
39												
40								75%				
41				GM								
42												
43												
44												

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION MW15	Moisture Content: Dry	Moist	Wet
16	GRAVEL TO >2" WITH SAND AND BROWN FINES. WET WHERE POROUS			⊗
17				⊗
18				
19				
20	GRAVEL TO 2" WITH SAND AND BROWN FINES. WET WHERE POROUS			⊗
21				⊗
22				
23				
24				
25	SAND WITH SOME BROWN SILT (~10%) AND PEBBLES (<10%)			⊗
26	SAND MED GRAINED, WET			⊗
27				
28				
29				
30	SAND, MED GRAINED, MINOR BROWN FINES, WET			⊗
31				⊗
32				
33				
34				
35	SAND AS ABOVE OVERLYING COBBLE (>2"), WET			⊗
36				⊗
37				
38				
39				
40	GRAVEL TO 2" WITH SOME SAND AND FINES. GRAVEL			⊗
41	SUB-ANGULAR TO SUB-ROUNDED. FINES BROWN AND VARIOUS OTHER COLORS (REDDISH, YELLOWISH). SOME FINE GRAINED			⊗
42	MATERIALS APPEAR TO BE RESULT OF IN-SITU WEATHERING OF			
43	PEBBLES (?)			
44				

MW15

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46				SW		1535		80%				
47												
48												
49												
50		9	17	ML		1545		100%				
51		48										
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

0074
155849

MW15

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
46	SAND WITH GRAVEL AND SOME BROWN FINES. SAND	O	O	X
47	FINE TO VERY COARSE, SUB-ANGULAR (MOSTLY). GRAVEL TO > 2", SUB-ANGULAR TO SUB-ROUNDED.	O	O	X
48		O	O	X
49		O	O	O
50	SILTY CLAY, GRAYISH BROWN WITH RUSTY BROWN MOTTLING (6") OVERLYING CLAYEY SILT WITH MINOR	O	X	O
51	V. FINE SAND, BLUISH GRAY	O	X	O
52		O	O	O
53	T.D. = 50.5 FT BGS	O	O	O
54	DRILLER INSTALLED MONITORING WELL MW15 IN	O	O	O
55	ACCORDANCE WITH SAMPLING PLAN AND SPECIFICATIONS	O	O	O
56	RECORDED ON p. 43 OF THIS GEOTECH LOG	O	O	O
57		O	O	O
58		O	O	O
59		O	O	O
60		O	O	O
61		O	O	O
62		O	O	O
63		O	O	O
64		O	O	O
65		O	O	O
66		O	O	O
67		O	O	O
68		O	O	O
69		O	O	O
70		O	O	O
71		O	O	O
72		O	O	O
73		O	O	O
74		O	O	O
75		O	O	O

Borehole Record for MW16

- Drilling Log
- Narrative Lithologic Description
- Well Development Record
- Well Development -- Parameter Measurements
- Investigation - Derived Waste Inventory Sheet

DRILLING LOG FOR MW16

Project Name HAMILTON LABREE PHASE III REMOVAL ASSESSMENT

Site Location CHEHALIS, WA

Date Started/Finished 2/1/01 - 2/1/01

Drilling Company GEOTECH EXPLORATIONS, INC.

Driller's Name JOEL WELSH

Geologist's Name MARK LONGTINE

Geologist's Signature [signature]

Rig Type (s) MOBILE B-59

Drilling Method (s) HOLLOW STEM AUGER

Bit Size (s) 9" Auger Size (s) 8"

Auger/Split Spoon Refusal

Total Depth of Borehole Is

Total Depth of Corehole Is

Water Level (TOIC)		
Date	Time	Level(Feet)

Well Location Sketch

Depth(Feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	~~HNU/OVA~~ (ppm) PID	Comments
1												
2												
3												
4												
5	Z	4	4	ML		0815		100%			0	
6		6										
7												
8												
9												
10	Z	3	10	ML		0825		100%			0	
11		16		~~SM~~								
12												
13												
14												

MW16

Stick-up FLUSH MOUNTED ft

• SCREENED WELL

Inner Casing Material SCH 40 PVC

Inner Casing Inside Diameter 2 inches

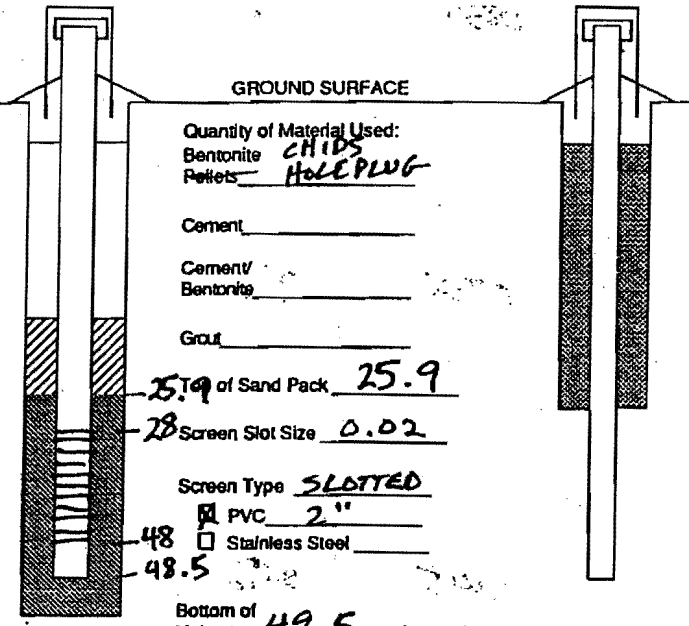
Lock Number _____

OPEN-HOLE WELL

Stick-up _____ ft

Inner Casing Material _____

Inner Casing Inside Diameter _____ inches



Top of Grout _____ ft

Borehole _____ inches Diameter _____ ft _____

Top of Seal at _____ ft

Bottom of Seal at 25.9

Top of Screen at 28.0 ft

Pack Type/Size:
- [x] Sand 10-20
- [ ] Gravel _____
- [ ] Natural _____

Bottom of Screen at 48.0 ft

Quantity of Material Used:
Bentonite CHIPS
~~Pellets~~ HOLEPLUG

Cement _____

Cement/ Bentonite _____

Grout _____

Top of Sand Pack 25.9

Screen Slot Size 0.02

Screen Type SLOTTED

- [x] PVC 2"
- [ ] Stainless Steel _____

Bottom of Hole at 49.5 ft

Bottom of Sandpack at 49.5

Top of Grout _____ ft

Bottom of Outer Casing _____ ft

Borehole Diameter _____ ft

Bedrock _____ ft

Bottom of Rock Socket/ Grout/ Casing _____ ft

Corehole Diameter _____

Bottom of Corehole _____ ft

NOTE: See pages 109 and 110 for well construction diagrams

Depth-ft.	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content: Dry	Moist	Wet
1		○	○	○
2		○	○	○
3		○	○	○
4		○	○	○
5	SILTY CLAY WITH MINOR SAND (UP TO V. COARSE), GRAYISH	○	⊗	○
6	BROWN WITH SOME RUSTY BROWN MOTTLING	○	⊗	○
7		○	○	○
8		○	○	○
9		○	○	○
10		○	○	○
11	SILTY CLAY/CLAYEY SILT WITH SOME FINE SAND, GRAYISH	○	⊗	○
12	BROWN WITH RUSTY BROWN MOTTLING (12") OVERLYING	○	⊗	○
13	GRAVEL WITH SAND AND SILTY CLAY/CLAYEY SILT. GRAVEL TO	○	○	○
14	1", SUB-ANGULAR	○	○	○
		○	○	○

MW16

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	~~HNu/OVA~~ PID (ppm)	Comments
16		9	13	GM		0830		60%			0	
16SB15		12										
17												
18												
19												
20		7	9	GW		0835		75%			0	
21		11										
22												
23												
24												
25		10	12	GM		0845		80%			0	
26		20										
27												
28												
29												
30		9	12	GW		0855		80%			0	
31		28		GM								
32												
33												
34												
35		50	55	GM		0905		30%			0	
36												
37												
38												
39												
40		15	17	GW		0915		100%			0	
41		25										
42												
43												
44												

Depth(feet).	NARRATIVE LITHOLOGIC DESCRIPTION MW16	Moisture Content Dry	Moist	Wet
16	GRAVEL WITH SOME SAND AND FINES. GRAVEL TO >2",			⊗
	ANGULAR TO SUB-ANGULAR. SAND AND FINES ~20%. WET			⊗
17				
18				
19				
20	GRAVEL AND SAND WITH <10% BROWN FINES. GRAVEL			⊗
21	TO 1", SUB-ANGULAR. SAND FINE TO V. COARSE. WET			⊗
22				
23				
24				
25	GRAVEL AND SAND WITH UP TO 25% BROWN FINES. GRAVEL TO			⊗
26	½" SUB-ANGULAR TO SUB-ROUNDED. SAND FINE TO COARSE,			⊗
27	WET			
28				
29				
30	GRAVEL WITH SAND AND <10% BROWN FINES GRADING DOWN			⊗
31	TO GRAVEL AND SAND WITH UP TO 15% FINES. GRAVEL			⊗
32	~~THROUGHOUT~~ SUB-ANGULAR TO SUB ROUNDED TO 1½".			
	SAND FINE TO V. COARSE, ANGULAR TO SUB-ANGULAR, WET			
33				
34				
35	GRAVEL, SAND AND UP TO ~~20%~~ 15% (est) BROWN FINES. GRAVEL			⊗
36	TO 1½" SUB-ANGULAR TO SUB-ROUNDED, SAND FINE TO			⊗
37	V. COARSE SUB-ANGULAR. WET			
38				
39				
40	SAND WITH SOME GRAVEL TO >2" (MOST <1") AND			⊗
41	MINOR BROWN FINES. SAND MOSTLY FINE TO MED GRAINED,			⊗
42	WITH SOME COARSE TO V. COARSE. WET			
43				
44				

MW16

Depth(feet)	Sample Number	Blows on Sampler		Soil Components CL SL S GR	Rock Profile	Penetration Times	Run Number	Core Recovery	RQD	Fracture Sketch	HNu/OVA (ppm)	Comments
46		11	21	GM		0920		80%			0	
47		50	(4									
48												DRILLER REPORTED SMOOTHER DRILLING AT 48.0 FT BGS
49		8	12	ML		0930		100%			0	
50		16										
51												
52												
53												
54												
55												
56												
57												
58												
59												
60												
61												
62												
63												
64												
65												
66												
67												
68												
69												
70												
71												
72												
73												
74												
75												

0079
E5B48

MW16

Depth (feet)	NARRATIVE LITHOLOGIC DESCRIPTION	Moisture Content Dry	Moist	Wet
46	GRAVEL WITH SAND AND UP TO 20% BROWN AND			⊗
47	YELLOWISH-ORANGE FINES. GRAVEL SUB-ANGULAR TO SUB-ROUNDED TO > 2". SAND FINE TO VERY COARSE.			⊗
48				
49	CLAYEY SILT / SILTY CLAY WITH MINOR FINE SAND AND ORGANICS, BLUISH GRAY, MOIST		⊗	
50			⊗	
51				
52	T.D. = 49.5' BGS			
53	DRILLERS INSTALLED MONITORING WELL MW16			
54	IN ACCORDANCE WITH SAMPLING PLAN AND			
55	SPECIFICATIONS RECORDED ON P. 43 OF THIS			
56	GEOTECH LOG.			
57				
58				
59				
60				
61				
62				
63				
64				
65				
66				
67				
68				
69				
70				
71				
72				
73				
74				
75				

06_E&E Phase IV Logs 2001

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-172

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.				
1		FL		0	NONE	MOIST	
2							
3			3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100161 collected.
8							Boring terminated at 8 feet.

04-18-2002 U:\SITART 2\HAMILTON LABREE BORING LOGS\FIL GP 172.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-173

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1			1.0' -2.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
2			2.0' -8.0' SILTY CLAY - Medium stiff, brown clay with 20% mottles of rust and black color, 10% silt.				
3							
4							
5		CL		0	NONE	MOIST	
6							
7							Sample 01100145 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\STAR1 2\HAMILTON LABREE BORING LOGS\HL GP 173.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-174

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' -5.0' SOIL - Clay rich soil , loose, brown, 5% organics.				
1							
2				0	NONE	MOIST	
3							
4							
5			5.0' -8.0' SILTY CLAY- Medium soft, grey clay, 15% mottles of rust and black color, 40% silt.				
6		CL		0	NONE	MOIST	
7							Sample 01100126 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 174.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-175

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' -4.0' SOIL - Clay rich soil , loose, brown.				
1							
2				0	NONE	MOIST	
3							
4			4.0' -8.0' SILTY CLAY- Medium stiff, brown clay, 20% mottles of rust and black color, 40% silt.				
5							
6		CL		0	NONE	MOIST	
7							Sample 01100125 collected.
8							Boring terminated at 8 feet.

04-18-2002 U:\SITAR1 2\HAMILTON LABREE BORING LOGS\HL GP 175.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-176

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0							
1		CH	0.0' - 2.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color.	0	NONE	MOIST	
2							
3		CL	2.0' -4.0' SILTY CLAY- Medium stiff, grey clay, 15% mottles of rust and black color, 30% silt and 20% verfy fine grained sand.	0	NONE	MOIST	
4							
5		CH	4.0' -6.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color.	0	NONE	MOIST	
6							
7		CL	6.0' -8.0' SILTY CLAY- Medium stiff, grey clay, 15% mottles of rust and black color, 30% silt and 20% verfy fine grained sand, 5% organics.	0	NONE	MOIST	Sample 01100128 collected.
8							Boring terminated at 8 feet.

04-18-2002 U:\START 2\HAMILTON LABREE BORING LOGS\HL GP 176.BUH

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-177

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1				0	NONE	MOIST	
2			2.0' -4.0' SOIL - Clay rich soil, loose, brown.				
3				0	NONE	MOIST	
4			4.0' -6.0' NO RECOVERY.				
5				0	NONE	MOIST	
6			6.0' -8.0' SILTY CLAY- Medium stiff, brown clay, 15% mottles of rust and black color, 20% silt.				
7		CL		0	NONE	MOIST	Sample 01100128 collected.
8							Boring terminated at 8 feet.

04-18-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 177.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-178

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD; RICE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61608
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.	0	NONE	MOIST	
1		CH	1.0' -4.0' CLAY- Medium stiff, red- brown clay, 15% mottles of rust and black color, 5% organics.	0	NONE	MOIST	
2							
3							
4			4.0' -7.0' NO RECOVERY.	0	NONE	MOIST	
5							
6							
7		CH	7.0' -8.0' CLAY- Medium stiff, red- brown clay, 15% mottles of rust and black color, 5% organics.	0	NONE	MOIST	Sample 01100130 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 178.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-166

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 16 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61607
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.	0	NONE	MOIST	
1		FL	1.0' - 2.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
2		CH	2.0' - 8.0' CLAY -Stiff, brown clay with 20% mottles of rust and black color.				
3							
4							
5							
6							
7							Sample 01100150 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\STAR12\HAMILTON LABREE BORING LOGS\HL GP 166.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-168

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 16 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61607
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.				
1		FL		0	NONE	MOIST	
2			1.0' - 2.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
3		CH		0	NONE	MOIST	
4			2.0' - 6.0' NO RECOVERY.				
5			6.0' - 8.0' SILTY CLAY - Medium stiff, brown clay with 20% mottles of rust and black color, 20% silt.				
6		CL		0	NONE	MOIST	
7							Sample 01100148 collected.
8							Boring terminated at 8 feet.

04-18-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 168.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-170

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 16 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61607
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -5.0' SOIL - Clay rich soil , loose, brown, 5% organics.				
3				0	NONE	MOIST	
4							
5			5.0' -8.0' SILTY CLAY- Medium stiff, grey clay, 15% mottles of rust and black color, 30% grading to 40% silt by 6'.				
6		CL		0	NONE	MOIST	
7							Sample 01100127 collected.
8							Boring terminated at 8 feet.

04/10/2002 U:\STARTUP\HAMILTON LABREE BORING LOGS\TL GP 170.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-179

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61609
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' CLAY- Medium stiff, brown clay, 15% mottles of rust and black color.				
3		CH		0	NONE	MOIST	
4			4.0' -5.0' NO RECOVERY.				
5			5.0' -6.0' CLAY- Medium stiff, brown clay, 15% mottles of rust and black color.				
		CH		0	NONE	MOIST	
6			6.0' -8.0' SILTY CLAY- Medium stiff, brown clay, 15% mottles of rust and black color, 40% silt.				
7		CL		0	NONE	MOIST	Sample 01100131 collected.
8							Boring terminated at 8 feet.

04-18-2002 USSPART 2\HAMILTON LABREE BORING LOGS\HL GP 179.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-180

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61609
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' SOIL - Clay rich soil, brown, loose.				
3				0	NONE	MOIST	
4			4.0' -8.0' SILTY CLAY- Medium stiff, brown clay, 15% mottles of rust and black color, 40% silt.				
5							
6		CL		0	NONE	MOIST	
7							Sample 01100132 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 180.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-181

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61610
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' SILTY CLAY- Medium stiff, brown clay, 15% mottles of rust and black color, 20% silt, 5% organics.				
3		CL		0	NONE	MOIST	
4			4.0' -6.0' NO RECOVERY.				
5							
6			6.0' -8.0' FILL MATERIAL - 65% coarse grained subangular sand, 35% gravel, loose, brown.				
7		FL		0	NONE	MOIST	Sample 01100133 collected.
							Boring terminated at 8 feet.
8							

04-16-2002 U:\SITAR\2\HAMILTON LABREE BORING LOG\GP 181.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-182

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61610
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' SOIL - Clay rich soil, loose, brown.				
3				0	NONE	MOIST	
4			4.0' -6.0' NO RECOVERY.				
5							
6			6.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.				
7		FL		0	NONE	MOIST	Sample 01100134 collected.
							Boring terminated at 8 feet.
8							

04-18-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 182.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-183

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61610
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' SOIL - Clay rich soil, loose, brown.				
3				0	NONE	MOIST	
4			4.0' -5.0' NO RECOVERY.				
5		CL	5.0' -6.0' SILTY CLAY - Medium stiff, brown clay with 15% mottles of rust and black color, 30% silt.	0	NONE	MOIST	
6		FL	6.0' -8.0' FILL MATERIAL - 70% coarse grained subangular sand, 30% gravel, loose, brown.	0	NONE	MOIST	Sample 01100135 collected.
7							Boring terminated at 8 feet.
8							

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOG\SHL GP 183.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-184

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61610
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -3.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
3		CH	3.0' -4.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' -5.0' NO RECOVERY.				
5			5.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.				
6		FL		0	NONE	MOIST	
7							Sample 01100136 collected.
8							Boring terminated at 8 feet.

04-18-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 184.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-185

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61610
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -3.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
3		CH	3.0' -4.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' -5.0' NO RECOVERY.				
5		CH	5.0' -6.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
6		FL	6.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	Sample 01100137 collected.
7							Boring terminated at 8 feet.
8							

09-18-2002 C:\SIAM1 2\HAMILTON LABREE BORING LOG\GP 185.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-187

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61612
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -3.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
3		CH	3.0' -4.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' -6.0' NO RECOVERY.				
5							
6			6.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.				
7		FL		0	NONE	MOIST	Sample 01100139 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 187.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-191

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 8 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61614
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.				
1		FL		0	NONE	MOIST	
2							
3			3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100160 collected.
							Boring terminated at 8 feet.
8							

04-18-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 191.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-188

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 8 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61613
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1			1.0' -2.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
2		CH	2.0' -4.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' -6.0' NO RECOVERY.				
6		FL	6.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	Sample 01100140 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\SIGMA\ 2\HAMILTON LABREE BORING LOGS\FL SP 188.DWG

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-189

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 8 T13N R3W.
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61613
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -3.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
3		CH	3.0' -4.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' -6.0' NO RECOVERY.				
5							
6		FL	6.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	Sample 01100141 collected.
7							Boring terminated at 8 feet.
8							

04-18-2002 C:\STARI ZIRAMILTON LABREE BORING LOGS\FIL GP 189.BOR

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provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-190

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: NE 1/4 SEC. 8 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61613
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' CLAY - Medium stiff,grey clay with 20% mottles of rust and black color.				
3		CH		0	NONE	MOIST	
4			4.0' -6.0' SILTY CLAY - Medium stiff, brown clay with 20% mottles of rust and black color, 20% silt, 20% sand.				
5		CL		0	NONE	MOIST	
6			6.0' -8.0' CLAY - Medium stiff, greyclay with 20% mottles of rust and black color.				
7		CH		0	NONE	MOIST	Sample 01100142 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 190.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-186

DATE BEGAN	: 11/06/01
DATE FINISHED	: 11/06/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 8 T13N R3W
LEWIS COUNTY ROW	RICE ROAD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61611
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -3.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
3		CH	3.0' -4.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' -5.0' NO RECOVERY.				
5		CH	5.0' -6.0' CLAY - Medium stiff, brown clay with 15% mottles of rust and black color.	0	NONE	MOIST	
6		FL	6.0' -8.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	Sample 01100138 collected.
7							
8							Boring terminated at 8 feet.

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International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-102

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1		FL	1.0' - 2.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles; medium stiff.		NONE	MOIST	PID not charged. No odor present.
2		CH	2.0'-8.0' CLAY- Medium stiff grey clay, 15% mottles of rust and black color increasing to 60% mottles at 7.0'.				
3							
4					NONE	MOIST	
5							
6							
7							Sample 01100076 collected.
					NONE	MOIST	
8							Boring terminated at 8 feet.

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provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-103

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' SOIL- Brown, clay rich soil.				
1			2.0' - 7.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
2							
3							
4		CH		0	NONE	MOIST	
5							
6							
7			7.0' - 8.0' CLAY - Medium stiff, green - grey clay with 30% mottles of rust and black color, 30% gravel.				Sample 01100110 collected.
		CL		0	NONE	MOIST	Boring terminated at 8 feet.
8							

04-18-2002 C:\SIARI 2\HAMILTON LABREE BORING LOGS\HL GP 103.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-104

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles; medium dense.		NONE	MOIST	
1		CH	1.0' - 7.0' CLAY- Medium stiff grey clay, 15% mottles of rust and black color.		NONE	MOIST	PID not charged. No odor present.
2							
3							
4							
5							
6							
7		CL	CLAY- Medium stiff grey clay, 15% mottles of rust and black color, with 15% subrounded pebbles.		NONE	DRY	Sample 01100077 collected.
8							Boring terminated at 8 feet.

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-105

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1			2.0' - 7.0' CLAY - Medium stiff, grey clay with 30% mottles of rust and black color.				
2							
3							
4		CH		0	NONE	MOIST	
5							
6							
7			7.0' - 8.0' CLAY - Medium stiff, green - grey clay with 30% mottles of rust and black color, 30% gravel.				Sample 01100109 collected.
		CL		0	NONE	MOIST	Boring terminated at 8 feet.
8							

04-18-2002 U:\SIAM\ZIPAMILTON LABREE BORING LOGS\HL GP 105.BOR

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International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-106

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 4.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles; medium dense, 5% organics 35% medium stiff grey clay, 15% mottles of rust and black color.				
1							
2		FL		0	NONE	MOIST	
3							
4			4.0' - 5.0' NO RECOVERY.	0			
5			5.0' - 8.0' CLAY- Medium stiff grey clay, 15% mottles of rust and black color, 5% mottles.				
6		CH		0	NONE	MOIST	
7							Sample 01100078 collected.
8							Boring terminated at 8 feet.

04-18-2002 U:\SIAM12\HAMILTON LABREE BORING LOGS\HL GP 106.BOR

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International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-107

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1			2.0' - 7.0' CLAY - Medium stiff, grey clay with 30% mottles of rust and black color.				
2							
3							
4		CH		0	NONE	MOIST	
5							
6							
7			7.0' - 8.0' CLAY - Medium stiff, green - grey clay with 30% mottles of rust and black color, and 30% gravel.				Sample 01100108 collected.
		CL		0	NONE	MOIST	Boring terminated at 8 feet.
8							

04-16-2002 C:\STARH 2\HAMILTON LABREE BORING LOGS\HL GP 107.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-108

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles; medium dense.	0	NONE	MOIST	
1		CH	1.0' - 8.0' CLAY- Medium stiff grey clay, 15% mottles of rust and black color, grading to tan color at 3.5'.	0	NONE	MOIST	
2							
3							
4							
5							
6							
7							Sample 01100079 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\STAR1 2\HAMILTON LABREE BORING LOGS\HL GP 108.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-109

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 8.0' CLAY - Medium stiff, grey clay with 15%-20% mottles of rust and black color.				
3							
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100107 collected.
8							Boring terminated at 8 feet.

04-18-2002 U:\SITAR\2\HAMILTON LABREE BORING LOGS\HL GP 109.BOR

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International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-110

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SW 1/4 SEC. 10 T13N R3W
LEWIS COUNTY ROW	HAMILTON RD NORTH
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61602
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles; loose.		NONE	MOIST	
1		CH	1.0' - 4.0' CLAY- Medium stiff grey clay, 15% mottles of rust and black color.		NONE	MOIST	PID not charged, no odor.
2							
3							
4			4.0' - 5.0' NO RECOVERY.				
5		CH	5.0' - 8.0' CLAY- Stiff grey clay, 15% mottles of rust and black color, 5% organics.		NONE	DRY	
6							
7							Sample 01100080 collected.
8							Boring terminated at 8 feet.

04-18-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 110.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-154

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1			1.0' - 3.0' FILL MATERIAL - 40% gravel, 30% coarse grained subangular sand, 30% clay rich soil, loose, grey.				
2		FL		0	NONE	MOIST	
3			3.0' - 4.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
		CH		0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5							
6			6.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
7		CH		0	NONE	MOIST	Sample 01100123 collected.
							Boring terminated at 8 feet.
8							

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 154.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-157

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
3		CH	3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4							
5							
6							
7							Sample 01100159 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\STAR12\HAMILTON LABREE BORING LOGS\HL GP 157.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-159

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' NO RECOVERY.				
1							
2							
3		FL	3.0' - 4.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
4		CH	4.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
5							
6							
7							Sample 01100157 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 159.BOR

ecology and environment, inc.
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provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-161

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
1							
2							
3							
4		CH	1.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
5							
6							
7							Sample 01100155 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 161.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-163

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1		FL	1.0' - 2.0' FILL MATERIAL - 60% coarse, subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
2		CH	2.0' - 4.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
6		CH	6.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	Sample 01100153 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 163.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-165

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
3		CH	3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4							
5							
6							
7							Sample 01100151 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\ISTAR1 2\HAMILTON LABREE BORING LOGS\TL GP 165.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-167

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 4.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.				
1							
2		FL		0	NONE	MOIST	
3							
4			4.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
5							
6		CH		0	NONE	DRY	
7							Sample 01100149 collected.
8							Boring terminated at 8 feet.

04-17-2002 U:\SIAH12\HAMILTON LABREE BORING LOGS\HL GP 167.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-169

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1		FL	1.0' - 2.0' FILL MATERIAL - 60% coarse grained subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
2		CH	2.0' - 6.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
6		CL	6.0' - 8.0' SILTY CLAY - Medium stiff, brown clay with 20% mottles of rust and black color, 30% silt.	0	NONE	MOIST	Sample 01100147 collected.
8							Boring terminated at 8 feet.

04-17-2002 USLAH1 2HAMILTON LABREE BORING LOGS\HL GP169.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-171

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61606
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
1		CH	1.0' - 4.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
2							
3							
4			4.0' -5.0' NO RECOVERY.				
5		CH	5.0' - 6.0' CLAY - Medium soft, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
6		CL	6.0' - 8.0' SANDY CLAY - Medium soft, brown clay with 20% mottles of rust and black color, 30% very fine grained sand, 20% silt.	0	NONE	MOIST	Sample 01100146 collected.
7							Boring terminated at 8 feet.
8							

04-17-2002 C:\STAR1 2\HAMILTON LABREE BORING LOG\TL GP 171.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-137

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 4.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
1							
2		CH		0	NONE	MOIST	
3							
4			4.0' - 8.0' SILTY CLAY- Medium stiff, grey clay, 20% mottles of rust and black color, 40% silt and fine grained sand, 5% organics.				
5							
6		CL		0	NONE	MOIST	
7							Sample 01100122 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 137.BOR

ecology and environment, inc.
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provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-139

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1		CH	1.0' - 4.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' - 7.0' NO RECOVERY.				
7		CH	7.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.	0	NONE	MOIST	Sample 01100121 collected. Boring terminated at 8 feet.
8							

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 139.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-140

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL - 60% coarse, subangular sand, 40% gravel, grey, loose.				
1		CH	1.0' - 4.0' CLAY- Medium stiff, grey clay, 30% mottles of rust and black color.	0	NONE	MOIST	
2							
3							
4			4.0' - 5.0' NO RECOVERY.				
5		SC	5.0' - 8.0' Clayey sand- Medium grained sand with 35% clay, medium soft, 20% mottles of rust and black colors.	0	NONE	MOIST	
6							
7							Sample 01100112 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 140.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-141

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
3							
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100120 collected.
							Boring terminated at 8 feet.
8							

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 141.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-142

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 6.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
3							
4		CH		0	NONE	MOIST	
5							
6			6.0' - 8.0' SAND CLAY- 30% Medium grained sand with 70% clay, medium soft, 20% mottles of rust and black colors.				
7		CL		0	NONE	MOIST	Sample 01100113 collected.
							Boring terminated at 8 feet.
8							

04-17-2002 U:\SITAR\2\HAMILTON LABREE BORING LOGS\HL GP 142.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-143

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2							
3		FL	2.0' - 2.5' FILL MATERIAL - 60%Coarse grained subangular sand, loose, grey, 40% gravel.	0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5							
6							
7		CH	6.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.	0	NONE	MOIST	Sample 01100119 collected. Boring terminated at 8 feet.
8							

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 143.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-144

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 5.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
3		CH		0	NONE	MOIST	
4							
5			5.0' - 8.0' SANDY CLAY- 70% clay, 30% Medium grained sand, medium soft, 20% mottles of rust and black colors.				
6		CL		0	NONE	MOIST	
7							Sample 01100114 collected.
8							Boring terminated at 8 feet.

04-17-2002 U:\SITAR\2\HAMILTON LABREE BORING LOG\HL GP 144.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-145

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 2.5' FILL MATERIAL - Coarse grained subangular sand, loose, grey.	0	NONE	MOIST	
3		CL	2.5' - 4.0' GRAVELLY CLAY- Medium stiff, grey clay, 20% mottles of rust and black color, 10% gravel, 5% organics.	0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5							
6		CH	6.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.	0	NONE	MOIST	Sample 01100118 collected.
7							
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 145.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-146

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 4.0' GRAVELLY CLAY- 60% green- grey clay, 30% gravel, 10% organics, 20 % mottles of rust and black colors, medium stiff.				
3		CL		0	NONE	MOIST	
4			4.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7							Sample 01100115 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 146.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-147

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' NO RECOVERY.				
1							
2							
3		CH	3.0' - 4.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5							
6		CH	6.0' - 8.0' CLAY- Medium stiff, grey clay, 20% mottles of rust and black color.	0	NONE	MOIST	Sample 01100117 collected.
7							Boring terminated at 8 feet.
8							

04-17-2002 C:\STAR12\HAMILTON LABREE BORING LOGS\HL GP 147.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-148

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 4.0' FILL MATERIAL - 60% coarse to very coarse grained subangular sand, 40% gravel, loose, grey.				
3		FL		0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5							
6			6.0' - 8.0' GRAVELLY CLAY- Medium stiff, grey clay, 20% mottles of rust and black color, 15% gravel.				
7		CL		0	NONE	MOIST	Sample 01100116 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 148.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-149

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 4.0' FILL MATERIAL - 60% coarse subangular sand, 30% gravel,10% clay loose, brown.				
3		FL		0	NONE	MOIST	
4			4.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7							Sample 01100166 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 149.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-150

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
3		CH	3.0' - 8.0' CLAY - Medium stiff, brown clay with 10% mottles of rust and black color.	0	NONE	MOIST	
4							
5							
6							
7							Sample 01100165 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 150.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-151

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1		FL	1.0' - 2.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
2		CH	2.0' - 8.0' CLAY - Medium stiff, brown clay with 10% mottles of rust and black color.	0	NONE	MOIST	
3							
4							
5							
6							
7							Sample 01100164 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 151.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-152

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61605
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1			1.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.				
2		FL		0	NONE	MOIST	
3			3.0' - 4.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
		CH		0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5		FO					
6			6.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
7		CH		0	NONE	MOIST	Sample 01100163 collected.
8							Boring terminated at 8 feet.

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-122

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, grey; loose.	0	NONE	MOIST	
1			1.0'- 2.0' NO RECOVERY.				
2		CH	2.0' - 7.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color, 5% organics.	0	NONE	MOIST	
3							
4							
5							
6							
7		CL	7.0' - 8.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color, 20% cobbles.	0	NONE	MOIST	Sample 01100086 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\STAR12\HAMILTON LABREE BORING LOGS\HL GP 122.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-124

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 4.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, 10% clay, rust brown; loose.				
1							
2		FL		0	NONE	MOIST	
3							
4			4.0' - 7.0' CLAY- Medium stiff, rust brown clay, 15% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7			7.0' - 8.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, rust brown; loose.				Sample 01100087 collected.
8		FL		0	NONE	MOIST	Boring terminated at 8 feet.

04-17-2002 C:\SIAH 2\HAMILTON LABREE BORING LOGS\HL GP 124.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-126

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1				0	NONE	MOIST	
2			2.0' - 4.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, 10% clay, rust brown; loose.				
3		FL		0	NONE	MOIST	
4			4.0' - 8.0' CLAY- Stiff, rust brown clay, 15% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7							Sample 01100088 collected.
8							Boring terminated at 8 feet.

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-128

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' FILL MATERIAL- 40% Clay, 30% gravel, 20% coarse grained, subangular sand, grey, loose.				
1		FL		0	NONE	MOIST	
2			2.0' - 8.0' CLAY- Stiff, rust brown clay, 15% mottles of rust and black color.				
3							
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100089 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOG\SHL GP 128.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-130

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' FILL MATERIAL- 40% gravel, 30% coarse grained, subangular sand, 30% clay, red brown- grey, medium loose.				
1		FL		0	NONE	MOIST	
2			2.0' - 6.0' CLAY- Stiff, rust brown clay, 15% mottles of rust and black color.				
3							
4		CH		0	NONE	MOIST	
5							
6			6.0' - 8.0' FILL MATERIAL- 50% gravel, 30% coarse grained, subangular sand, 20% clay, vivid blue green, medium dense.				
7		FL		0	NONE	MOIST	Sample 01100090 collected.
							Boring terminated at 8 feet.
8							

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 130.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-132

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- 40% gravel, 30% coarse grained, subangular sand, 30% clay, red brown- grey, medium loose.	0	NONE	MOIST	
1			1.0' - 3.0' NO RECOVERY.				
2				0	NONE	MOIST	
3		CH	3.0' - 8.0' CLAY- Medium stiff, rust brown grading to grey green clay, 40% mottles of rust and black color.				
4							Some standing water in hole.
5				0	NONE	MOIST	
6							
7							Sample 01100091 collected.
							Tip of sleeve contained vivid blue- green gravel. Boring terminated at 8 feet.
8							

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 132.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-134

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 4.0' FILL MATERIAL- 40% clay 30% coarse grained, subangular sand, 30%gravel, grey, loose.				
1							
2		FL		0	NONE	MOIST	
3							
4			4.0' - 8.0' CLAY- Medium soft grading to stiff, grey green clay, 40% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7							Sample 01100092 collected.
							Bottom 5 inches of soil sample contained vivid blue- green gravel.
8							Boring terminated at 8 feet.

04/17/2002 C:\01ART\2\HAMILTON LABREE BORING LOG\HTL GP 134.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-136

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- 40% gravel, 30% coarse grained, subangular sand, 30% clay, red brown, loose.	0	NONE	DRY	
1			1.0' - 5.0' NO RECOVERY.				
2							
3							
4							
5		CH	5.0' - 6.0' CLAY- Medium stiff, red- brown clay, 15% mottles of rust and black color.	0	NONE	MOIST	
6		FL	4.0' - 8.0' FILL MATERIAL- 40% coarse grained subangular sand, 30% clay, 30% gravel, brown, loose.	0	NONE	MOIST	
7		CH	4.0' - 8.0' CLAY- Medium stiff- stiff, grey green clay, 40% mottles of rust and black color.	0	NONE	MOIST	Sample 01100093 collected.
8							Boring terminated at 8 feet.

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-138

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 4.0' CLAY- Medium stiff- stiff, grey clay, 20% mottles of rust and black color.				
3		CH		0	NONE	MOIST	
4			4.0' - 5.0' NO RECOVERY.				
5			5.0' - 8.0' FILL MATERIAL- 60% coarse grained, subangular sand, 30% gravel, 10% clay, grey, med dense.				
6		FL		0	NONE	MOIST	
7							Sample 01100111 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\STARTI 2\HAMILTON LABREE BORING LOGS\HL GP 138.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-153

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd. N.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61604
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 30% gravel, 10% clay, loose, brown.				
1		FL		0	NONE	MOIST	
2							
3			3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100162 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\ISI ARI 2\HAMILTON LABREE BORING LOGS\HL GP 153.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-111

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 60% coarse- very coarse grained sand, 30% gravel, 10% clay, med. loose, grey.	0	NONE	MOIST	
3		CH	3.0' - 4.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' - 6.0' NO RECOVERY.				
5							
6		CH	6.0' - 8.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	Sample 01100106 collected.
7							
8							Boring terminated at 8 feet.

04-17-2002 D:\START 2\HAMILTON LABREE BORING LOGS\HL GP 111.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-112

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, grey; loose.		NONE	MOIST	
1			1.0' - 3.0' NO RECOVERY.				PID not charged, no odor.
2							
3		CH	3.0' - 4.0' CLAY- Medium soft, grey clay, 15% mottles of rust and black color.		NONE	MOIST	
4			4.0' - 5.0' NO RECOVERY.				
5		CH	5.0' - 8.0' CLAY- Medium stiff, grey grading to tan at 7.0' clay, 15% mottles of rust and black color.		NONE	MOIST	
6							
7							Sample 01100081 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 112.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-113

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' - 5.0' FILL MATERIAL - 60% coarse- very coarse grained sand,30% gravel, 10% clay, med. loose, grey.				
3		FL		0	NONE	MOIST	
4							
5			5.0' - 8.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.				
6		CH		0	NONE	MOIST	
7							Sample 01100105 collected.
8							Boring terminated at 8 feet.

04-17-2002 U:\SITAHT 2\HAMILTON LABREE BORING LOGS\HL GP 113.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-114

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: Ham. Rd. N.;Labree Rd.
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	LABREE RD
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, grey; loose.		NONE	MOIST	
1			1.0' - 3.0' NO RECOVERY.				PID not charged, no odor.
2							
3		CH	3.0' - 8.0' CLAY- Medium stiff grading to stiff, grey green to grey clay, 40% mottles of rust and black color.		NONE	MOIST	
4							
5							
6							
7							Sample 01100082 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 114.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-115

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 70% coarse- very coarse grained sand,30% gravel, med. loose, grey.	0	NONE	MOIST	
3		CH	3.0' - 4.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4			4.0' - 5.0' NO RECOVERY.				
5		CH	5.0' - 8.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
6							
7							Sample 01100104 collected.
8							Boring terminated at 8 feet.

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provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-116

DATE BEGAN	: 10/30/01
DATE FINISHED	: 10/30/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, grey; loose.		NONE	MOIST	
1		CH	3.0' - 8.0' CLAY- Stiff, brown clay grading to grey clay, 15% mottles of rust and black color changing to 40% mottles at 7.0'.		NONE	MOIST	PID not charged, no odor.
2							
3							
4							
5							
6							
7							Sample 01100083 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 116.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-117

DATE BEGAN	: 11/02/01
DATE FINISHED	: 11/02/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 2.5' FILL MATERIAL - 45% coarse- very coarse grained sand,35% gravel, 20% clay, loose, grey.	0	NONE	MOIST	
1							
2							
3		CH	2.5' - 4.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4		FO	4.0' - 7.0' NO RECOVERY.				
5							
6							
7		CL	7.0' - 8.0' CLAY - ~10% silt in matrix of grey clay. Medium stiff, 15% mottles of rust and black.	0	NONE	MOIST	Sample 01100103 collected. Bottom 3" of sleeve contains 20% gravel. Boring terminated at 8 feet.
8							

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 117.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-118

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, grey; loose.	0	NONE	MOIST	
1			3.0' - 8.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color.				
2							
3							
4		CH		0	NONE	MOIST	
5							
6							
7							Sample 01100084 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 118.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-119

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0							
1		FL	0.0' - 2.0' FILL MATERIAL - 60% gravel, 40% coarse-very coarse grained sand, loose, grey.	0	NONE	MOIST	
2							
3		CH	2.0' - 4.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4		FO	4.0' - 5.0' NO RECOVERY.				
5							
6		CH	5.0' - 7.0' CLAY - Medium stiff, grey clay with 20% mottles of rust and black color.	0	NONE	MOIST	
7		FL	7.0' - 8.0' FILL MATERIAL - 40% clay, 30% coarse-very coarse grained sand, 30%gravel, medium dense, grey with rust staining.	0	NONE	MOIST	Sample 01100102 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 119.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-120

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- Coarse grained, subangular sand with 15% subrounded pebbles, grey; loose.	0	NONE	MOIST	
1		CH	1.0' - 8.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color grading to 60% mottles at 4.0'.	0	NONE	MOIST	
2							
3							
4							
5							
6							
7							Sample 01100085 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 120.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-121

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 8.0' FILL MATERIAL - 40% gravel, 30% coarse-very coarse grained sand, 30% clay, medium dense, grey.				
1							
2							
3							
4		FL		0	NONE	MOIST	
5							
6							
7							Sample 01100101 collected.
							Boring terminated at 8 feet.
8							

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 121.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-123

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL - 60% coarse- very coarse grained sand,40% gravel, loose, grey.	0	NONE	MOIST	
1		CH	1.0'- 3.0' CLAY- Medium stiff, grey clay, 40% mottles of rust and black color.	0	NONE	MOIST	
3		FL	3.0' - 8.0' FILL MATERIAL - 40% coarse- very coarse grained sand,40% gravel, 20% clay, medium dense, grey.	0	NONE	MOIST	
7							Sample 01100100 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 123.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-125

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL - 60% coarse- very coarse grained sand,40% gravel, loose, grey.	0	NONE	MOIST	
1			1.0'- 8.0' CLAY- Medium stiff, grey clay, 40% mottles of rust and black color.				Groundwater level at the surface.
2							
3							
4		CH		0	NONE	MOIST	
5							
6							
7							Sample 01100099 collected.
8							Boring terminated at 8 feet.

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 125.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-127

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL - 70% gravel and 30% coarse- very coarse grained sand, loose, grey.	0	NONE	MOIST	
1		CH	1.0'- 8.0' CLAY- Medium stiff, grey clay, 40% mottles of rust and black color.	0	NONE	MOIST	
2							
3							
4							
5							
6							
7							Sample 01100098 collected.
							Gravel found in end of sampling sleeve.
							Boring terminated at 8 feet.
8							

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-129

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 1.0' NO RECOVERY.				
1			1.0' - 2.0' SOIL- Medium dense, clay rich soil.	0	NONE	MOIST	
2			2.0' - 8.0' CLAY- Medium stiff, grey clay, 40% mottles of rust and black color.				
3							
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100097 collected.
8							Boring terminated at 8 feet.

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-131

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' FILL MATERIAL- 50% coarse grained, subangular sand, 50% gravel, grey, loose.				
1		FL		0	NONE	MOIST	
2			2.0' - 8.0' CLAY- Medium stiff, grey- green clay, 40% mottles of rust and black color.				
3							
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100096 collected.
							Boring terminated at 8 feet.
8							

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree

Project Location: Chehalis, Washington
Boring Identification: GP-133

DATE BEGAN	: 11/01/01
DATE FINISHED	: 11/01/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' FILL MATERIAL- 40% coarse grained, subangular sand, 30% gravel, 30% clay, grey, loose.				
1		FL		0	NONE	MOIST	
2			2.0' - 7.75' CLAY- Stiff, grey clay, 40% mottles of rust and black color.				
3							
4							
5		CH		0	NONE	MOIST	
6							
7							Sample 01100095 collected.
							Boring terminated at 8 feet.
8		FL		0	NONE	MOIST	

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-135

DATE BEGAN	: 10/31/01
DATE FINISHED	: 10/31/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0		FL	0.0' - 1.0' FILL MATERIAL- 40% gravel, 30% coarse grained, subangular sand, 30% clay, red brown, loose.	0	NONE	DRY	
1		CH	1.0' - 6.0' CLAY- Medium stiff, grey clay, 15% mottles of rust and black color.	0	NONE	MOIST	
6		FL	6.0' - 7.0' FILL MATERIAL- 60% gravel,40% coarse grained subangular sand, grey, loose.	0	NONE	MOIST	
7		CL	7.0' - 8.0' GRAVELLY CLAY- Medium stiff- stiff, grey clay, 20% mottles of rust and black color, 20% gravel.	0	NONE	MOIST	Sample 01100094 collected. Boring terminated at 8 feet.
8							

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-155

DATE BEGAN	: 11/05/01
DATE FINISHED	: 11/05/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2			2.0' -4.0' SOIL - Clay rich soil and loam.				
3				0	NONE	MOIST	
4			4.0' - 7.0' SILTY CLAY- Medium stiff, grey clay, 20% mottles of rust and black color, 40% silt.				
5		CL		0	NONE	MOIST	
6							
7			7.0' - 8.0' GRAVELLY CLAY- Gravel layer followed by medium stiff, grey clay, 20% mottles of rust and black color.				Sample 01100124 collected.
		CL		0	NONE	MOIST	Boring terminated at 8 feet.
8							

04-17-2002 O:\START 2\HAMILTON LABREE BORING LOGS\HL GP 155.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-156

DATE BEGAN	: 11/08/01
DATE FINISHED	: 11/08/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' NO RECOVERY.				
1							
2							
3		FL	3.0' - 4.0' FILL MATERIAL - 60% coarse subangular sand, 30% gravel,10% clay loose, brown.	0	NONE	MOIST	
4			4.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7							Sample 01100167 collected.
8							Boring terminated at 8 feet.

08-17-2006 U:\SITES\HAMILTON LABREE BORING LOGS\GP 156.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-158

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
3		CH	3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4							
5							
6							
7							Sample 01100158 collected.
8							Boring terminated at 8 feet.

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-160

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 2.0' NO RECOVERY.				
1							
2		FL	2.0' - 3.0' FILL MATERIAL - 60% coarse subangular sand, 40% gravel, loose, brown.	0	NONE	MOIST	
3		CH	3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.	0	NONE	MOIST	
4							
5							
6							
7							Sample 01100156 collected.
8							Boring terminated at 8 feet.

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ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-162

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 4.0' SOIL - Clay rich soil, loose, brown.				
1							
2				0	NONE	MOIST	
3							
4			4.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
5							
6		CH		0	NONE	MOIST	
7							Sample 01100154 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\START 2\HAMILTON LABREE BORING LOGS\HL GP 162.BOR

ecology and environment, inc.
International Specialists in the Environment

provided for:
Environmental Protection Agency
Project Name: Hamilton LaBree
Project Location: Chehalis, Washington
Boring Identification: GP-164

DATE BEGAN	: 11/07/01
DATE FINISHED	: 11/07/01
FIELD GEOLOGIST	: J. Spiegel
LOG EDITOR	: J. Spiegel
LOG CHECKED BY	: J. Fowlow
CONSULTING FIRM	: E & E, Inc.
DRILLING FIRM	: E & E, Inc.
DRILLER NAME	: A. Jensen
DRILLER SIG.	:
LICENSE NO.	: N/A

DRILLING METHOD	: Geoprobe
PROPERTY OWNER	: LEWIS COUNTY
LOCATION	: SE 1/4 SEC. 9 T13N R3W
LEWIS COUNTY ROW	Ham. Rd. N.;Labree Rd.
TAX PARCEL NO.	: N/A
NOTICE OF INTENT	: NO. R 61603
CONSTRUCTION OR	: DECOMMISSION
ECOLOGY WELL ID	: N/A
CASED	: UNCASED
STATIC LEVEL	: N/A

Depth in Feet	GRAPHIC	USCS	DESCRIPTION	PID (ppm)	VISIBLE NAPL	MOISTURE	REMARKS
0			0.0' - 3.0' NO RECOVERY.				
1							
2							
3			3.0' - 4.0' SOIL - Clay rich soil, loose, brown.	0	NONE	MOIST	
4			0.0' - 2.0' NO RECOVERY.				
5							
6			3.0' - 8.0' CLAY - Medium stiff, brown clay with 20% mottles of rust and black color.				
7		CH		0	NONE	MOIST	Sample 01100152 collected.
8							Boring terminated at 8 feet.

04-17-2002 C:\STAR1 2\HAMILTON LABREE BORING LOGS\HL GP 164.BOR

07_Farallon Logs 2002

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-1

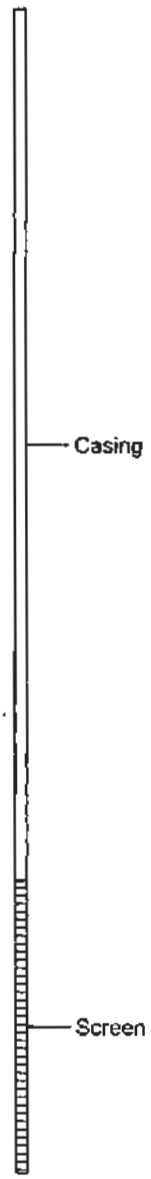
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/9/02 1230	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 1720	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	7-9-15	100	RS-070902-04	X		ML		SILT with sand, (80% silt, 20% fine sand), brown-grey, medium stiff to stiff, slightly moist, no odor.
10	X	10-20-26	100	RS-070902-06	X		GP-GM		Poorly Graded, GRAVEL, with silt, (70% gravel, 20% fine sand, 10% silt) brown-grey, medium dense, slightly moist, no odor.
15	X	20-22-25	100				GW-GM		Well graded GRAVEL with silt and sand, (60% gravel, 30% coarse to fine sand, 10% silt), dark brown, medium dense, moist, no odor.
	—			RS 070902-08 (GW)	X				
20									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 205.4 feet msl

LOG OF BORING RS-1

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-1

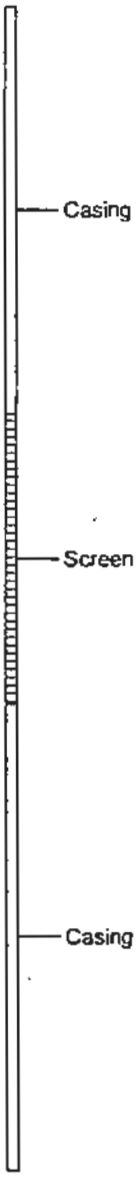
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/9/02 1230	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 1720	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	10-12-15	100				GW-GM		Well graded GRAVEL with silt and sand, (65% gravel, 25% sand, 10% silt), brown, loose, wet, no odor.
25	X	27-50/6"	100				GM		Silty GRAVEL, (70% gravel, 20% silt, 10% sand), brown, dense, wet, no odor.
				RS-070902-10 (GW)	X				
30	X	75/6"	33				GW		Well graded GRAVEL, (80% gravel, 15% sand, 5% silt), brown, very dense, wet, no odor.
35	X	50/6"	33			2.0	GW-GM		Well graded GRAVEL with silt and sand, (75% coarse to fine gravel, 15% coarse to fine sand, 10% silt), brown, dense, wet, no odor.
40									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 205.4 feet msl

LOG OF BORING RS-1

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-1

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/9/02 1230	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 1720	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	26-50/6"	100				GM		Silty GRAVEL, (70% coarse to fine gravel, 25% silt, 5% medium to fine sand), brown, dense, wet, no odor.
	—			RS-070902-14	X				
	X	100/6"	50				GM		Silty GRAVEL, (75% coarse to fine gravel, 20% silt, 5% medium to fine sand), brown, very dense, wet, no odor.
	X	80/6"				9.2	GW		
	X	70/6"	100			1295	GW		
	X	41-50/6"		RS-070902-12 (GW)	X	5.1	GW-GM		Well graded GRAVEL with sand, (60% coarse to fine gravel, 35% coarse to fine sand, 5% silt), orange-brown, very dense, wet, no odor.
45	X	100/5"					GP-GM		
	X	100/6"					SM		Well graded GRAVEL with sand, (50% medium to fine gravel, 45% coarse to fine sand, 5% silt), orange-brown, very dense, wet, no odor.
	X	20-28-50					ML		Well graded GRAVEL with sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), orange, dense, wet, no odor.
50									Poorly graded GRAVELwith sand, (50% fine gravel, 40% coarse to fine sand, 10% silt), orange, very dense, wet, no odor.
									Silty SAND with gravel, (50% coarse to fine sand, 50% silt), orange-red, very dense, moist, no odor.
									SILT, (100% silt), blue-grey, very stiff, slightly moist, no odor.
55									
60									

Casing

Screen

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 205.4 feet msl

LOG OF BORING RS-1

(Page 3 of 3)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-2

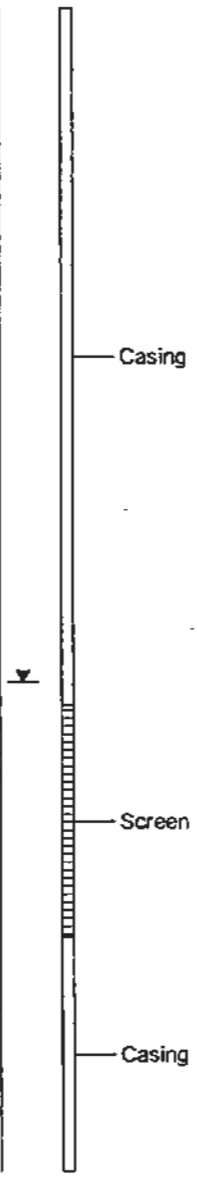
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/10/02 0720	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/10/02 1430	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	4-6-7	100	RS-071002-01	X	4.8	ML		Sandy SILT, (70% silt, 30% fine sand), brown-grey mottled, medium stiff, moist, no odor, abundant organic matter-woody debris.
10	X	12-21-40	100	RS-071002-03	X	3.1	ML		gravely SILT, course to fine gravel, fine sand, (50% silt, 40% gravel, 10% sand), grey to reddish-brown, stiff to very stiff, slightly moist, no odor.
15	X	20-22-30	100			3.4	GM		Silty GRAVEL, (70% course to fine gravel, 20% silt, 10%medium to fine sand), brown, medium dense, very moist to wet, no odor.
				RS-071002-05 (GW)	X				
20	X	28-25-23	80			5.1	GP-GM		GRAVEL, Poorly Graded, with silt, (85% course to fine angular gravel, 10% silt, 5% sand.) brown, madium dense, wet, no odor.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 206.4 feet msl

LOG OF BORING RS-2

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-2

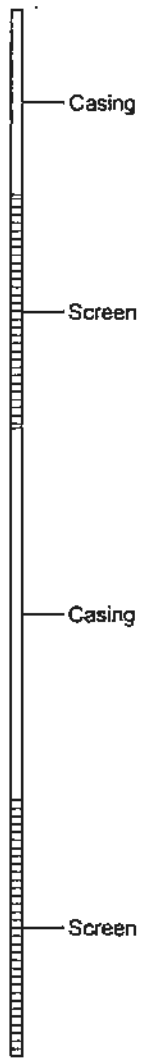
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/10/02 0720	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/10/02 1430	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	23-30-30	100			7.3	GM		Silty GRAVEL, with sand, (70% coarse to fine gravel, 15% coarse to fine sand, 15% silt), brown, medium dense, very moist, no odor.
30	X	27-50/6"	100	RS-071002-07 (GW)	X	5.5	GM		Silty GRAVEL, with sand, (70% coarse to fine gravel, 15% coarse to fine sand, 15% silt), brown, medium to very dense, very moist, no odor.
35	X	21-50/6"	100			2.7	GM		Silty GRAVEL, with sand, (70% coarse to fine gravel, 15% coarse to fine sand, 15% silt), brown, medium to very dense, very moist, no odor.
40	X	100/8"	50			6.8	GM		Silty GRAVEL, with sand, (70% fine gravel, angular to sub-rounded, 15% coarse to fine sand, 15% silt), brown, very dense, very moist, no odor.
	X	100/6"	0						Cobble in sampler. No recovery
	—			RS-071002-11 (GW)	X				
45	X	46-20-50	50	RS-071002-09	X	3.6	GM		Silty GRAVEL, with sand, (70% coarse to fine gravel, 15% medium to fine sand, 15% silt), reddish-brown, wet, no odor.
	X		10				GM		
	X	22-50/6"	100			0.0	ML		Silty GRAVEL, with sand, (70% coarse to fine gravel, 15% medium to fine sand, 15% sand), reddish-brown, wet, no odor.
50									SILT, (100% silt), greenish-grey, slightly moist, no odor.



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 206.4 feet msl

LOG OF BORING RS-2

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF Boring RS-3

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/10/02 1630	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/111/02 1100	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 15.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	4-5-6	100			0.6	ML		Sandy SILT, (80% silt, 20% fine sand), brown-grey mottled, soft, moist, no odor.
10	X	12-12-20	60			0.3	ML		Sandy SILT, (75% silt, 15% fine sand, 10% fine gravel), greenish-grey, stiff, moist, no odor.
15	X	20-20-25	100			0.2	GP-GM		Poorly graded GRAVEL with silt and sand, (60% coarse to fine gravel, 30% medium to fine sand, 10% silt), brown, medium dense, very moist to wet, no odor.
				RS-071002-13 (GW)	X				
20	X	21-50/6	50			0.1	GM		Silty GRAVEL with sand, (70% coarse to fine gravel, 15% coarse to fine sand, 15% silt), brown, dense, wet, no odor.
25									

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 206.5 feet msl

LOG OF Boring RS-3

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF Boring RS-3

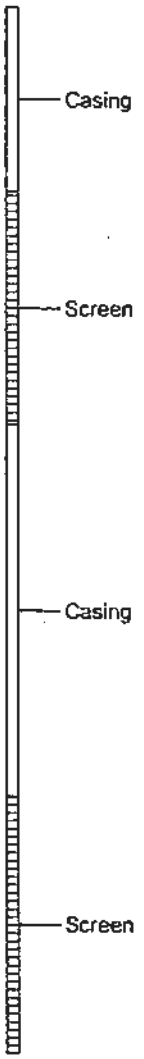
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/10/02 1630	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/111/02 1100	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 15.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	29-50/6	30			0.0	GM		Silty GRAVEL with sand, (70% coarse to fine gravel, 15% coarse to fine sand, 15% silt), brown, dense, wet, no odor.
30	X	25-50/6	80	RS-071102-01 (GW)	X		GP		Poorly graded GRAVEL with sand, (50% coarse to fine gravel, 45% medium to fine sand, 5% silt), brown, very moist to wet, dense, no odor.
	X	75/6	40				GP		Poorly graded GRAVEL with sand, (50% coarse to fine gravel, 45% medium to fine sand, 5% silt), brown, very moist to wet, very dense, no odor.
35									
40	X		0						
	—			RS-071102-03 (GW)	X				
45	X		0						No recovery.
	X		0						Sand pack from temporary well
	X	41-50/6	40				ML		SILT, greenish grey, stiff, moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 206.5 feet msl

LOG OF Boring RS-3

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-4

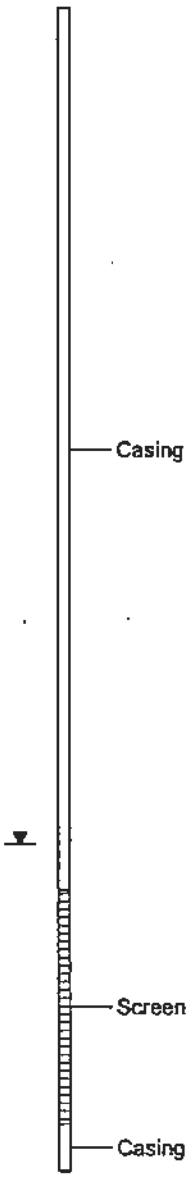
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/16/02 1330	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/16/02 1630	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 18 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	5-6-7	100			7.3	ML		SILT with sand, (80% silt, 20% fine sand), grey, moist, soft, no odor.
10	X	8-9-14	100			6.7	ML		SILT with gravel, (75% silt, 15% coarse to medium gravel, 10% fine sand), grey, moist, stiff, no odor.
15	X	23-50/6"				6.6	GW		Well graded GRAVEL, with sand, (70% coarse to fine gravel, 25% coarse to fine sand, 5% silt), brown, dense, moist, no odor.
20				RS-071602-05 (GW)	X				No soil recovered.
25	X	50/6"	20			6.3	GW-GM		Well Graded, GRAVEL, with silt, and sand, (70% medium to fine gravel, 15% coarse to fine sand, 10% silt), grey-brown, dense, wet, no odor.



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 204.1 feet msl

LOG OF BORING RS-4
(Page 1 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-4

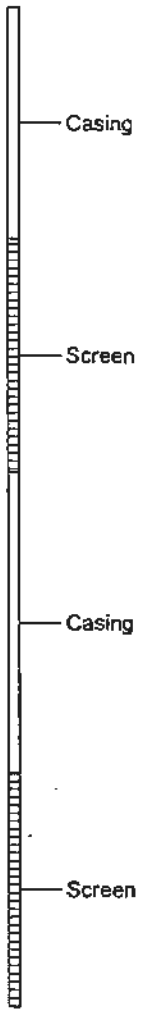
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/16/02 1330	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/16/02 1630	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 18 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25									
30	X		100			7.3	SW		Well Graded, SAND, with gravel, (50% coarse to fine sand, 45% coarse to fine gravel, 5% silt), brown, medium dense, wet, no odor.
35	X	60/6"	90	RS-071602-06 (GW)	X	6.1	GM		Well Graded, GRAVEL, with silt and sand, (50% coarse to fine gravel, 40% coarse to fine sand, 10% silt), brown, dense, wet, no odor.
40	X		0						No sample. Filter pack.
45	X	25-30-50/4"	100	RS-071602-07 (GW)	X	3.7	MH		SILT (75% silt, 20% course to fine sand, 5% fine gravel), light brown-grey, very stiff, moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 204.1 feet msl

LOG OF BORING RS-4

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-5

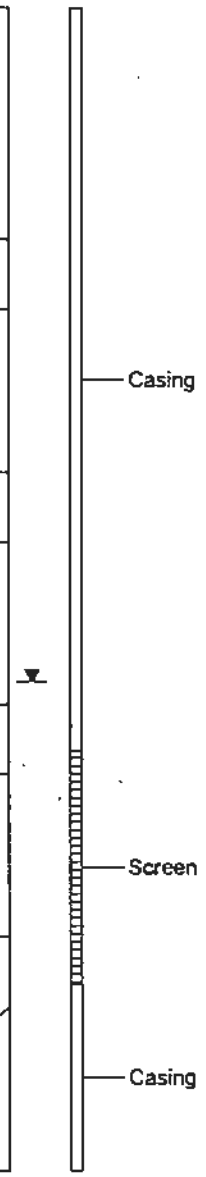
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/11/02 1215	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1820	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	7-9-15	100	RS-061102-03	X		ML		Sandy SILT, (70% silt, 30% fine sand), brown-grey, very moist, no odor.
10	X	10-20-26	100	RS-061102-04	X		ML		Sandy SILT, (70% silt, 30% fine sand), brown-grey, very moist, no odor.
15	X	20-22-25	0						No Recovery.
	—			RS-071102-05 (GW)	X				
20	X		100			0.1	SP-SM		SAND with gravel and silt (50% poorly graded fine-medium sand, 40% fine-coarse gravel, 10% silt), brown, very moist to wet, no odor.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.24 Feet msl

LOG OF BORING RS-5

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-5

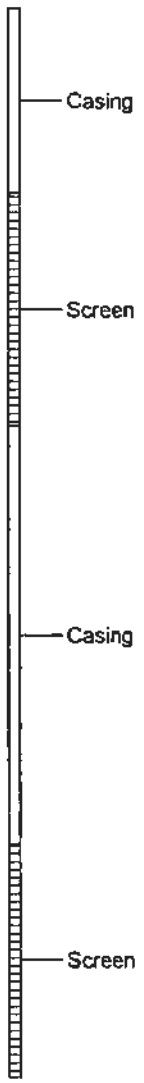
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/11/02 1215	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1820	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X		100			1.1	SP-SM		Silty SAND with gravel (50% fine to medium sand, 35% fine to coarse gravel, 15% silt), brown, wet, no odor.
30	X		50	RS-071102-07 (GW)	X	0.0	SP-SM		Silty SAND with gravel (50% fine to medium sand, 35% fine to coarse gravel, 15% silt), brown, very moist, no odor.
	X		0						Rock in sample tube.
35									
40	X		0						Filter pack sand.
45				RS-071102-09 (GW)					
	X						ML		SILT, (100% silt), greenish grey, moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.24 Feet msl

LOG OF BORING RS-5

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-6

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/15/02 1500	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/15/02 1830	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 47.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	10-14-20	40			1.0	ML		Sandy SILT with gravel, (40% silt, 40% coarse to fine sand, 20% fine gravel), brown, stiff, slightly moist, no odor.
10	X	12-17-21	40			0.8	ML		SILT, (90 % silt, 10% fine sand), light brown-grey stiff, wet, no odor.
15	X	27-50/6"	90				GW-GM		Well graded GRAVEL with sand silt, (60% coarse to fine gravel, 30% coarse to fine sand, 10% silt), brown, dense, slightly moist, no odor.
20	X	17-29-40	80	RS-071502-04 (GW)	X	0.4	GP		Poorly graded GRAVEL with sand, (80% coarse to fine gravel, 15% coarse to fine sand, 5% silt), brown, wet, no odor.
25									

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 204.5 feet msl

LOG OF BORING RS-6

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-6

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Faralton PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/15/02 1500	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/15/02 1830	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 47.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	28-50/6"	70			0.5	GP		Poorly graded GRAVEL with sand, (60% coarse to fine gravel, 35% coarse to fine sand, 5% silt), brown, dense, wet, no odor.
30	☒	60/6"	100			0.4	GP		Poorly graded GRAVEL with sand, (60% coarse to fine gravel, 35% coarse to fine sand, 5% silt), brown, very dense, wet, no odor.
	—			RS-071502-05 (GW)	X				
35	☒	31-30/6"	100			0.4	GP		Poorly graded GRAVEL with sand, (55% medium to fine gravel, 40% coarse to fine sand, 5% silt), brown, medium dense, wet, no odor.
40	☒	27-50/6"	100			0.4	SP		Poorly Graded SAND, (75% medium to fine sand, 20% medium to fine gravel, 5% silt), brown, dense, wet, no odor. * Note: 90% appears to be sand from filter pack.
45	☒						GW-GM		Well graded GRAVELwith silt and sand, (50% coarse to fine gravel, 40% coarse to fine sand, 10% silt), brown, medium dense, wet, no odor.
	☒			~~RS-071502-06 (GW)~~	X	0.5	ML		SILT, (90% silt, 10% coarse to fine sand), brown-gray, stiff, slightly moist, no odor.
50									

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 204.5 feet msl

LOG OF BORING RS-6

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-7

S.C. Breen
Hamilton/LaDree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/16/02 0815	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/16/02 1100	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 16.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	5-7-9	100			1.6	ML		SILT, (95% silt, 5% very fine sand, trace organic matter), grey-light brown, medium stiff, moist, no odor.
10	X	12-24-30	100			1.3	GM		Silty GRAVEL with sand, (40% medium to fine gravel, 30% silt, 30% coarse to fine sand), greenish-grey/reddish-brown, medium dense, moist, no odor.
15	X	21-31-21	100			1.1	GM		Silty GRAVEL with sand, (50% coarse to fine gravel, 30% coarse to fine sand, 20% silt), brown, medium dense, moist, no odor. *Note: wet at bottom of sample.
20	X	14-25-28	100			4.7	GW		Well graded GRAVEL with sand, (70% coarse to fine gravel, 25% coarse to fine sand, 5% silt), brown, medium dense, wet, no odor.
25	X	21-25-31	100	RS-071602-01 (GW)	X	5.0	GW		Well graded GRAVEL with sand, (65% coarse to fine gravel, 30% coarse to fine sand, 5% silt), brown, medium dense, wet, no odor.

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.30 Feet msl

LOG OF BORING RS-7

FARALLON CONSULTING
320 3rd Avenue NE
Issoquah, WA 98027

LOG OF BORING RS-7

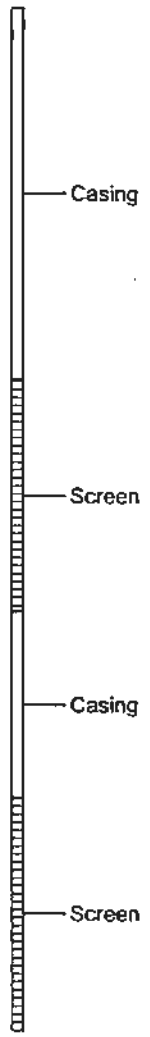
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/16/02 0815	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/16/02 1100	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 16.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 47.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	21-25-31	100			5.0	GW		
30	☒	5-24-33	100				GW		Well graded GRAVEL with sand, (50% coarse to fine gravel, 45% coarse to fine sand, 5% silt), brown, loose, wet, no odor. *Note: 95% appears to be filter pack sand.
35	☒	26-50/6"	85				SM		Silty SAND with gravel, (50% coarse to fine sand, 30% coarse to fine gravel, 20% silt), brown, dense, wet, no odor.
				RS-071602-02 (GW)	X				
40									
45	☒	100/6"	100				SW		Well graded SAND, with gravel, (65% coarse to fine sand, 30% coarse to fine gravel, 5% silt), brown, very dense, wet, no odor.
	☒	50-50/6"	100				ML		SILT (90% silt, 10% fine gravel), grey-brown, hard, slightly moist, no odor.
				RS-071602-04 (GW)	X				
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.30 Feet msl

LOG OF BORING RS-7

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-8

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/10/02 1320	Drilling Method	: Geoprobe
Date/Time Completed	:	Sampler Type	:
Equipment	: Large Bore Geoprobe	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 11.0 feet bgs
Drilling Foreman	: Casey Goble		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0			50				GW		Sandy GRAVEL, (coarse to fine gravel, coarse to fine sand, minor silt), tan-brown, slightly moist.
							ML		SILT, (95% silt, 5% fine sand) trace organics rootlets, olive gray, slightly moist.
			30				ML		SILT, (trace organic matter, rootlets, trace fine sand) olive-grey, slightly moist.
5			100	RS-061002-01	X		ML		Sandy SILT, (60% silt, 40% very fine sand), light brown, slightly moist, light gray gradational color change to blue-gray.
			100				ML		SILT with sand, (60% silt, 40% fine sand) blue-grey with orange brown mottling, gradational color change to medium brown, slightly moist.
			100	RS-061002-02	X		ML		SILT with sand, (sand is very fine grained, trace organic matter), medium brown with blue-gray streaking, moist.
10			100				GP		GRAVEL, trace sand, light gray, slightly moist.
							SP		SAND, trace gravel, trace fines, orange-brown, very moist.

Refusal of Geoprobe at 11 feet bgs. See boring log for RS-8A for lighology from 11 to 46 feet bgs.

15

20

25

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.59

LOG OF BORING RS-8

(Page 1 of 1)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-8A

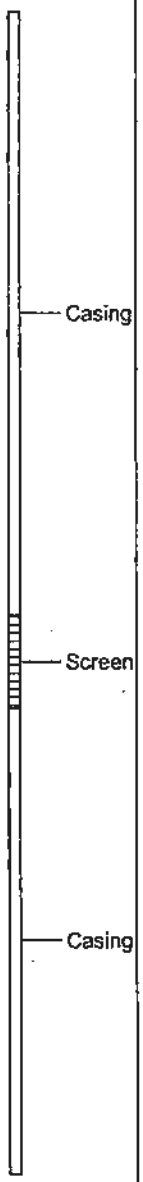
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/24/02 1230	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/25/02 1000	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 12.0
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0			50						See Boring Log for RS-8 for lithology from 0.0 to 11.0 feet bgs. Completed on 6/10/02 using a geoprobe rig.
			30						
5		4-6-7	100	RS-062402-01	X				
10		25-28-45	100	RS-062402-02	X				
		27-36-31	100				GM		Silty GRAVEL with sand, (60% coarse to fine gravel, sub-angular to rounded, 20% coarse to fine sand, 20% silt), light brown, dense, moist. Becomes wet at 12.0'
		100/6"	60				GM		
		100/3"	0	RS-062402-03 (GW)	X				No recovery.
15		30-40-30	50				GM		Silty GRAVEL with sand, (60% coarse to fine gravel, sub-angular to rounded, 20% coarse to fine sand, 20% silt), light brown, dense, moist.
		25-36-50	80				GM		Silty GRAVEL with sand, (60% coarse to fine gravel, sub-angular to rounded, 20% coarse to fine sand, 20% silt), light brown, dense, moist.
		14-14-17	80				GW-GM		
20		30-37-50					GW-GM		Well graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), light brown, wet.
		45-32-36	100				GW-GM		Well graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), light brown with reddish-brown mottling, medium dense to dense, wet.
		14-38-50	100						
25		38-40-50/3"	90						



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.59 feet msl

LOG OF BORING RS-8A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-8A

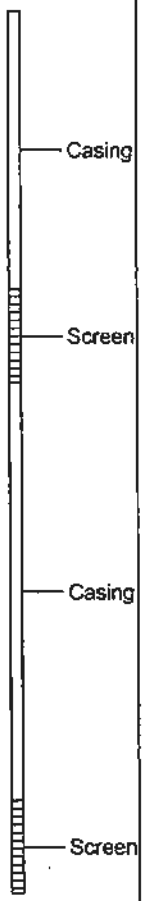
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/24/02 1230	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/25/02 1000	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 12.0
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25		38-40-50/3"	90				GW-GM		
		10-28-50/5"	90				SP		Lens of poorly graded fine sand, dark brown, from 26 to 26.5 feet bgs.
		21-38-50	100				GW-GM		Well graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), light brown, medium dense to dense, wet.
		29-39-35	100						
30		30-50/6"							
		39-50/6"	100	RS-062402-04 (GW)	X		SW		Well graded SAND, (90% sand, 5% gravel, 5% silt), light brown, medium dense to dense, wet.
		22-39-50	100				GW-GM		Well graded GRAVEL with silt and sand, (70% gravel, 20% coarse to fine sand, 10% silt), orange-brown mottling, medium dense, wet.
		6-12-24							Slough from temporary well filter-pack.
35		11-15-50	50				GW-GM		Well graded GRAVEL with silt and sand, (70% gravel, 20% coarse to fine sand, 10% silt), orange-brown mottling, medium dense, wet.
		31-50/4"							Slough from temporary well filter-pack.
		80/6"							Slough from temporary well filter-pack.
40		23-39-50	100				GW-GM		Well graded GRAVEL with silt and sand, (70% gravel, 20% coarse to fine sand, 10% silt), orange-brown mottling, medium dense to dense, wet.
		14-12-12	100				GW-GM		Well graded GRAVEL with silt and sand, (70% gravel, 20% coarse to fine sand, 10% silt), orange-brown mottling, loose, wet.
		10-20-50	100	RS-062502-01 (GW)	X		GM		Silty GRAVEL with sand, (60% coarse to fine gravel, 20% coarse to fine sand, 20% silt), brown, wet.
		39-50/5"	100	RS-062402-05	X		GM		
45			100				ML		Silty GRAVEL with sand, (60% coarse to fine gravel, 20% coarse to fine sand, 20% silt), brown, wet.
									Silt, (95% silt, 5% very fine sand trace organic matter), grey-orange mottling, hard.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.59 feet msl

LOG OF BORING RS-8A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-9

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/11/02 1430	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1845	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 51.50 feet bgs
Drilling Foreman	: Frank		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	7/7/9	100	RS-071102-08	X		SM		Silty SAND, (85% medium to fine sand, 15% silt), grey-brown, loose, moist, no odor.
10	X	8/8/14	100	RS-071102-10	X	1.1	ML		SILT, (85% silt, 15% fine sand, trace gravel), grey-brown, stiff, moist, no odor.
15	X	100/6"	10				ML		SILT, (85% silt, 15% fine sand), grey-brown, very dense, moist, no odor.
20	X	50-50/6"	15	RS-071102-12 (GW)	X	1.0	GM		Silty GRAVEL with sand, (50% coarse to fine gravel, 30% coarse to very fine sand, 20% silt), light brown, dense, wet, no odor.

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 202.07

LOG OF BORING RS-9

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-9

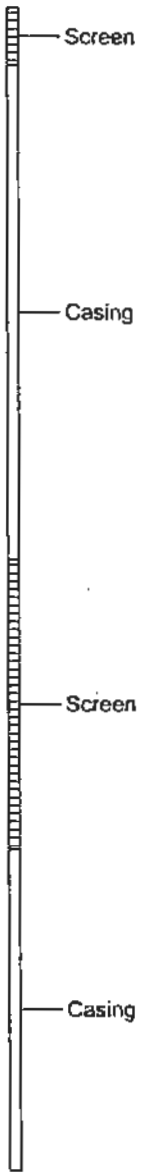
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/11/02 1430	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1845	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 51.50 feet bgs
Drilling Foreman	: Frank		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20									
	☒	65/6"	25			1.0	SM		SILT with sand with gravel, (70% coarse to fine sand, 15% coarse to fine gravel, 15% silt), light brown, very dense, wet, no odor.
25									
30	☒	70/6"	10			1.2	SM		Silty SAND with gravel, (60% coarse to fine sand, 25% coarse to fine gravel, 15% silt), light brown, very dense, wet, no odor.
	—			RS-071102-14 (GW)	X				
35	☒	100/6"	0						No soil recovered.
	☒	68/6"	0						No soil recovered.
40									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 202.07

LOG OF BORING RS-9

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-9

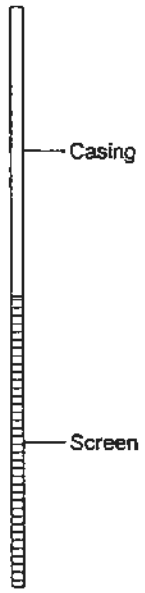
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/11/02 1430	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1845	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 51.50 feet bgs
Drilling Foreman	: Frank		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40									
	☒	50/6"	25			1.1	GW		Well graded GRAVEL with sand, (65% coarse to fine gravel, 30% coarse to fine sand, 5% silt), brown, dense, no odor.
	☒	56/6"	50				GW		
45	☒	17-50/5"	100			1.0	SW		Well graded GRAVEL with sand, (65% coarse to fine gravel, 25% coarse to fine sand, 5% silt), brown, dense, wet, no odor.
	☒	100/4"	100			1.1	GM		Well Graded SAND, (75% coarse to fine sand, 20% fine gravel, 5% silt), brown, very dense, wet, no odor.
	☒	83/6"	100	RS-071202-02 (GW)	X	1.0	SW		
	☒	37-50/3"	60				ML		Silty GRAVEL with sand, (55% medium to fine gravel, 30% coarse to fine sand, 15% silt) wet, brown, dense, no odor.
	☒	40-41-50/5"	100	RS-071102-16	X	1.0	GM		Well Graded SAND (70% coarse to fine sand, 25% medium to fine gravel, 5% silt), wet, very dense, brown, no odor.
50	☒	10-20-50					ML		SILT with gravel (65% silt, 25% coarse gravel, 10% fine sand), wet, hard, light brown, no odor.
									Silty, GRAVEL, with sand (60% coarse to fine gravel, 15% coarse to fine sand, 25% silt), wet, dense, light brown/orange, no odor.
									SILT (85% silt, 15% fine sand), moist, grey, stiff, no odor.
55									
60									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 202.07

LOG OF BORING RS-9

(Page 3 of 3)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-10

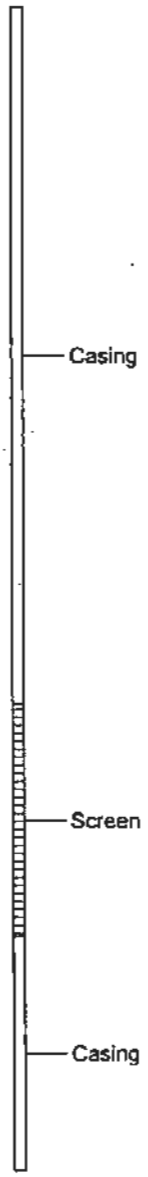
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/8/02 1800	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 15.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank/Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	4-4-7	100			0.0	ML		SILT with sand, (85% silt, 15% fine sand trace organic matter.), grey, medium stiff, moist, no odor.
10	X	6-11-24	100			2.4	ML		Gravelly SILT, (70% silt, 25% coarse to fine gravel, 5% fine sand.), grey, stiff, moist, no odor.
15	X	16-16-20	75			2.5	GM		Silty GRAVEL, (80% coarse to fine gravel, 15% silt, 5% fine sand.), brown, medium-dense, wet, no odor.
	—			RS-070902-01 (GW)	X				
20	X	71/6"	80			0.0	GM		Silty GRAVEL with sand, (70% coarse to fine gravel (subangular), 15% coarse to fine sand, 15% silt.), brown, very dense, wet, no odor.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 202.23 ft msl

LOG OF BORING RS-10

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-10

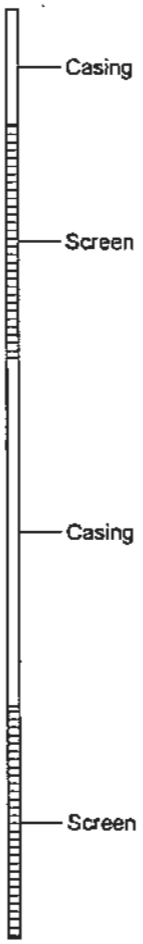
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/8/02 1800	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 15.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank/Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	37-50/2"	30			4.3	GM		Silty GRAVEL with sand, (70% coarse to fine gravel (subangular), 15% coarse to fine sand, 15% silt), brown, dense, wet, no odor.
30	☒	100/5"	60	RS-070902-03 (GW)		6.5	GM		Silty GRAVEL with sand, (70% fine gravel (subangular), 15% coarse to fine sand, 15% silt), brown, very dense, wet, no odor.
35	☒	10-50/6"	40			6.4	GM		Silty GRAVEL with sand, (70% fine gravel (subangular), 15% coarse to fine sand, 15% silt.), brown, dense, wet, no odor.
40	☒	100/6"	0						No recovery
	☒	72/6"	100	RS-070902-05 (GW)					Slough from temporary well.
	☒	100/4"	80						Slough from temporary well.
	☒	100/6"	0						No recovery.
45	☒	66-70	100			0.0			SILT, mottled greenish-grey and red-brown, hard, moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 202.23 ft msl

LOG OF BORING RS-10

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-11

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/12/02 1030	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/15/02 1330	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	7-11-15	100			6.8	ML		SILT (90% silt, 10% fine sand), grey-light brown, stiff, slightly moist, no odor.
10	X	7-10-14	100			6.9	ML		SILT (90% silt, 10% fine sand), grey/light brown, stiff, moist, no odor.
15	X	15-70/6"	10			4.4	ML		SILT with sand, (75% silt, 25% coarse to fine sand), grey, hard, moist, no odor.
				RS-071202-06 (GW)	X				
20	X	7-10-14	90			7.0	SW		Well graded SAND, (55% coarse to fine sand, 40% medium to fine gravel, 5% silt), light brown, loose, wet, no odor.
25									

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation: 202.34 feet msl

LOG OF BORING RS-11

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-11

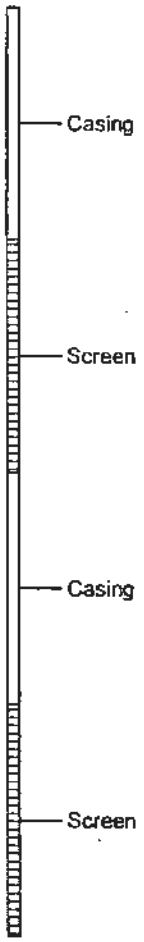
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/12/02 1030	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/15/02 1330	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	40-50/6"	10			1.0	SW		Well Graded SAND, (90% coarse to fine sand, 5% fine gravel, 5% silt), light brown, dense, wet, no odor.
30	☒	100/6"	40			5.5	GW		Well graded GRAVEL with sand, (65% coarse to fine gravel, 30% coarse to fine sand, 5% silt), light brown, very dense, wet, no odor.
35	☒	27-50/6"	100	RS-071502-02 (GW)	X	3.8	SW		Well Graded SAND, (55% coarse to fine sand, 40% medium to fine gravel, 5% silt), brown, dense, wet, no odor. *Note: Very distinct separation between deeper sand layer, and upper gravel layer.
40	☒	100/6"	100			3.9	SM		Silty SAND with gravel, (45% coarse to fine sand, 30% silt, 25% medium to fine gravel), brown, very dense, loose sand/gravel, wet, no odor.
45	☒	23-50/6"	100	RS-071502-03 (GW)	X	10.6	ML		SILT, (80% silt, 20% fine sand), brown/blue-grey, stiff, slightly moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation: 202.34 feet msl

LOG OF BORING RS-11

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-12

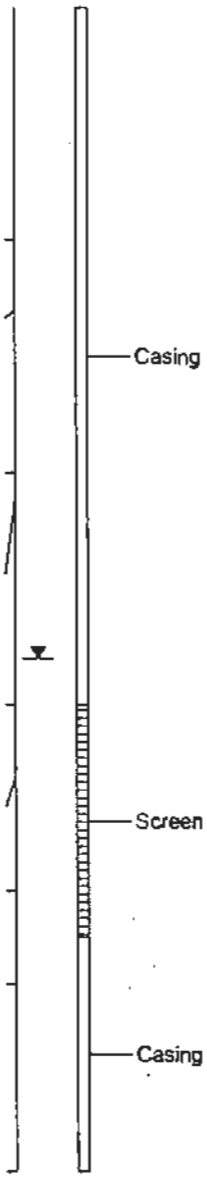
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/12/02 0700	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/12/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	8-9-14	100	RS-071202-01	X	0.0	ML		Sandy SILT (80% silt, 20% fine sand, trace organic matter), mottled, grey-brown, stiff, moist, no odor.
10	X	75/6"	20	RS-071202-03	X	0.0	GP		Poorly graded GRAVEL with sand, (75% coarse to fine gravel, 20% coarse to fine sand, 5% silt), yellowish brown, very dense, moist, no odor.
15	X	11-22-25	100			0.0	GM		Silty GRAVEL, (80% coarse to fine gravel, 15% silt, 5% coarse to fine sand), brown, medium dense, wet, no odor.
				RS-071202-05 (GW)	X				
									No recovery.
20	X	27-50/6"	0						
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.30 feet msl

LOG OF BORING RS-12

FARALLON CONSULTING
320 3rd Avenue NE
Issoquah, WA 98027

LOG OF BORING RS-12

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/12/02 0700	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/12/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	5-17-30	10				SP		Filter pack sand.
30	X	85/6"	60	RS-071202-07 (GW)	X	2.3	GM		Silty GRAVEL, (80% coarse to fine gravel, 15% silt, 5% medium to fine sand), brown, very dense, wet, no odor.
	X	100/6"	80			1.8	GM		Silty GRAVEL, (80% coarse to fine gravel, 15% silt, 5% medium to fine sand), brown, very dense, wet, no odor.
35									
40	X	19-31-50	40	RS-071202-09		0.0	SM		Silty GRAVEL, (80% coarse to fine gravel, 15% silt, 5% medium to fine sand), brown, dense, wet, no odor.
				RS-071202-11 (GW)	X				
	X	100/6"	0						No recover
45	X	31-50/6"	100			0.0	ML		SILT, (100% silt), mottled reddish-brown/grey at top of sample, greenish-grey at bottom of sample, hard moist, no odor.
50									

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.30 feet msl

LOG OF BORING RS-12

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-13

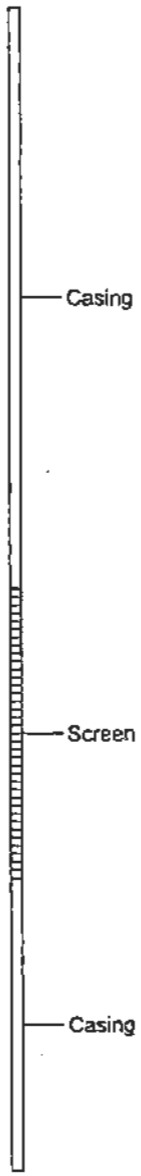
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A.Morine

Date/Time Started	: 7/10/02 1645	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1115	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 49.5 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	6-10-14	100			0.2	ML		SILT, (95% silt, 5% very fine sand), light brown/grey, stiff, slightly moist, no odor.
10	X	22-50/5"	100			0.2	ML		SILT with sand, (70% silt, 20% coarse to fine sand, 10% fine gravel), grey-brown, hard, moist, no odor.
	—			RS-071002-08 (GW)	X				
15	X	50/6"	10			0.8	GM		Silty GRAVEL with sand, (80% coarse to fine gravel, 15% coarse to fine sand, 5% silt), grey, dense, wet, no odor.
20									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.05

LOG OF BORING RS-13

FARALLON CONSULTING
320 3rd Avenue NE
Issoquah, WA 98027

LOG OF BORING RS-13

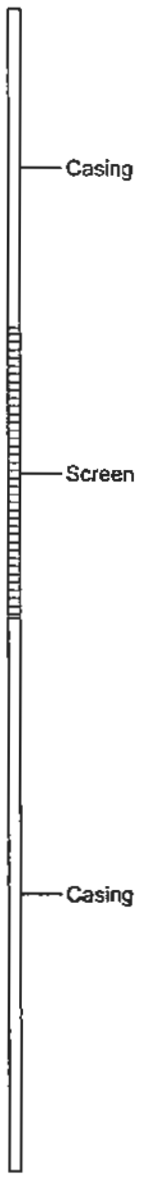
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A.Morine

Date/Time Started	: 7/10/02 1645	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1115	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 49.5 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	7-8-6	100			0.8	GW		Well graded GRAVEL with sand, (75% coarse to fine gravel, 20% coarse to fine sand, 5% silt), brown, loose, wet, no odor.
	X	100/6"	10			0.7	GW		Well graded GRAVEL, (85% coarse to fine gravel, 10% coarse to fine sand, 5% silt), very dense.
25									
30	X	80/6"	100	RS-071102-02 (GW)	X	0.8	SW-SM		Poorly Graded SAND with silt and gravel, (75% coarse to fine sand, 15% medium to fine gravel, 10% silt), brown, very dense, wet, no odor.
35	X	40-50/2"	100			0.8	GW-GM		Well graded GRAVEL with silt and sand, (65% medium to fine gravel, 25% coarse to fine sand, 10% silt.), light brown, dense, wet, no odor.
40	X	20-50/5"	100				GW-GM		Well graded GRAVEL with silt and sand, (65% medium to fine gravel, 25% coarse to fine sand, 10% silt), brown, dense, wet, no odor.



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.05

LOG OF BORING RS-13
(Page 2 of 3)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-13

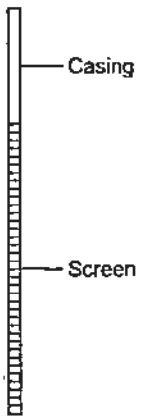
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A.Morine

Date/Time Started	: 7/10/02 1645	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/11/02 1115	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 49.5 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40									
	☒	100/5"	100			0.9	SP		Poorly Graded SAND, (90% coarse to fine sand, 5% fine gravel, 5% silt), orange-brown, very dense, wet, no odor.
	☒	100/6"	20	RS-071102-04 (GW)	X	0.5	SP-SM		
	☒	41-50/3"	25			0.8	GW-GM		
45	☒	21-50/4"	30			0.8	SM		Poorly Graded SAND with silt, (80% medium to fine sand, 15% silt, 5% medium to fine gravel), brown, very dense, wet, no odor.
	☒	31-50/5"	15			0.8	SM		Well graded GRAVEL with sand, (55% medium to fine gravel, 35% coarse to fine sand, 10% silt), brown, dense, wet, no odor.
	☒	27-50/5"	15				ML		
	☒	10-14-31	100				ML		Silty SAND, (65% coarse to fine sand, 20% silt, 15% coarse to fine gravel), brown, dense, wet, no odor.
50									Silty SAND, (65% coarse to fine sand, 25% silt, 10% medium to fine gravel), brown, dense, wet, no odor.
									SILT (90% silt, 10% very fine sand) grey, stiff, wet, no odor.
									SILT (95% silt, 5% very fine sand), blue-grey, stiff, moist, no odor.
55									
60									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.05

LOG OF BORING RS-13

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-14

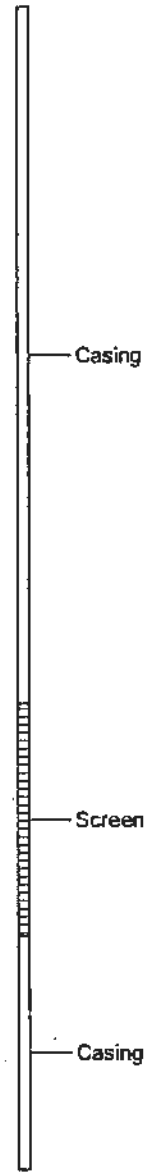
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/9/02 1520	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/10/02	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 15.0
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	5-7-7	100			4.4	ML		Sandy SILT with gravel, (60% silt, 25% fine to medium sand, 15% coarse to fine gravel), trace organic matter, mottled grey/reddish-brown, medium stiff, moist, no odor.
10	X	9-50/5"	100			3.9	SM		Silty SAND with gravel, (40% silt, 40% medium to fine silt, 20% course to fine sand.), grey to red, dense, moist, no odor.
15	X	31-32-41	75			3.4	GM		Silty GRAVEL with sand, (60% coarse to fine gravel, 25% coarse to fine sand, 15% silt), brown, dense, wet, no odor.
	—			RS-070902-09 (GW)	X				
20	X	60/6"	30				GM		Silty GRAVEL with sand, (60% coarse to fine gravel, 25% coarse to fine sand, 15% silt), brown, very dense, wet, no odor.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 200.69 feet msl

LOG OF BORING RS-14

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-14

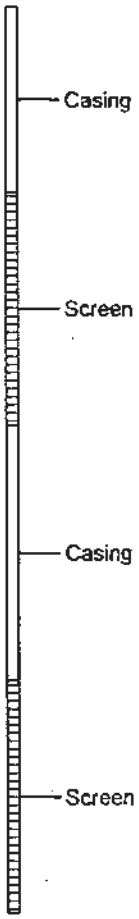
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: C. Brock

Date/Time Started	: 7/9/02 1520	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/10/02	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 15.0
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	4-35-50/6"	33				ML		Sandy SILT, (55% silt, 40% coarse gravel, 5% medium to fine sand), brown, very stiff, wet, no odor. *Note: large cobble in sampler, limited recovery.
30	☒	20-50/6"		RS-071002-02 (GW)	X		SM		Silty SAND with gravel, (70% coarse to fine sand, 15% coarse to fine gravel, 15% silt), brown, dense, wet, no odor.
35	☒	4-35-50/6"	20				GW		Well graded GRAVEL with sand, (60% medium to fine gravel, 30% medium to fine sand, 10% silt.), brown, dense, wet, no odor. *Note: Mainly filter sand from temporary well.
40	☒	60/6"	100			0.1	GW-GM		Well graded GRAVEL with silt and sand, (65% coarse to fine gravel, 25% coarse to fine sand, 10% silt), brown, dense, wet, no odor.
				RS-071002-04 (GW)	X				
	☒	4-10-20				0.2	GP		Poorly graded GRAVEL with sand, (65% medium to fine gravel, 30% coarse to fine sand, 5% silt), light brown, loose, wet, no odor.
	☒	15-40-40/7"				0.3	ML		
45	☒	20-30-50/5"				0.2	ML		SILT with sand, (80% silt, 20% fine sand), orange-brown, stiff to very stiff, moist, no odor.
									SILT, (90% silt, 10% very fine sand), light brown/blue-grey, stiff, moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 200.69 feet msl

LOG OF BORING RS-14

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-15

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/11/02 1125	Drilling Method	: Geoprobe
Date/Time Completed	: 6/11/02 1230	Sampler Type	: 1" I.D. x 2 ' core barrel
Equipment	: Large Bore Geoprobe	Depth Of Water ATD	: 12.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 18.0 feet bgs
Drilling Foreman	: Casey Goble		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0		NA	50				GW		Well graded GRAVEL, (75% carse to fine angular gravel, 20% coarse to fine sand, 5% silt, trace organic matter), light brown, slightly moist.
			20				ML		SILT with sand, (80% silt, 20% fine sand), dark grey, stiff, slightly moist.
5			100			15	ML		SILT, (85% silt, 15% very fine sand, traces of gravel, trace organic matter), orange-brown mottled, stiff, moist.
			100				ML		SILT, (85% silt, 15% very fine sand, traces of gravel, trace organic matter), orange-brown mottled, stiff, moist.
			100				ML		SILT, (85% silt, 15% very fine sand, traces of gravel, trace organic matter), orange-brown mottled, stiff, moist. Becomes medium grey at 8.5 feet bgs.
10			70				ML		Sandy SILT, (60% silt, 40% fine sand), olive grey, medium loose, moist.
			30			500-700	GM		Silty GRAVEL, (85% coarse to fine gravel, 15% silt), olive grey, wet.
15			50			13	GM		Silty GRAVEL, (85% coarse to fine gravel, 15% silt), olive grey, wet.
			60				GM		Silty GRAVEL, (85% coarse to fine gravel, 15% silt), olive grey, wet.
20									
25									

See boring log for RS-15A for lithology from 18.0 to 46.0 feet bgs.

TEMPORARY WELL INFORMATION

Ground Surface Elevation = 200.95 feet msl

LOG OF BORING RS-15

(Page 1 of 1)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-15A

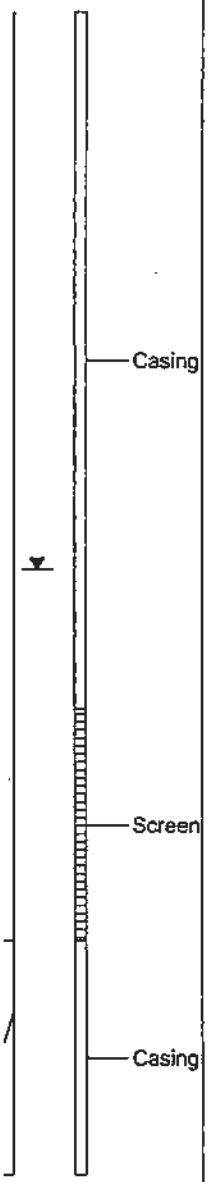
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/26/02 0815	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/26/02 1230	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 12.0
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									See boring log for RS-15 for lithology to from 0 to 18.0 feet bgs.
5									
10									
15				RS-062602-1 (GW)	X				
20	☒	50/6"	15			0.0	GP-GM		Poorly graded GRAVEL with silt and sand, (60% fine gravel, rounded and subangular, 30% coarse to fine sand, 10% silt), light brown, wet.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 200.95 feet msl

LOG OF BORING RS-15A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-15A

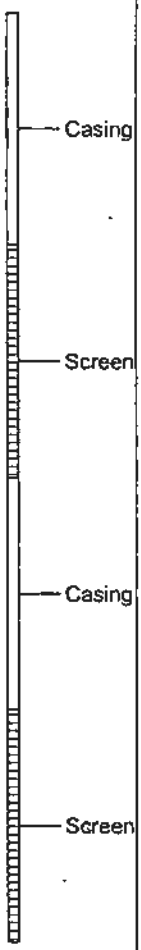
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/26/02 0815	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/26/02 1230	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 12.0
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	27-50/6"	50			0.0	GW-GM		Well graded GRAVEL with silt and sand, (75% coarse to fine gravel, 15% coarse to fine sand, 10% silt), orange-brown, very moist.
30	☒	50/6"		RS-062602-2 (GW)	X	0.0	GW-GM		Well graded GRAVEL with silt and sand, (75% coarse to fine gravel, 15% coarse to fine sand, 10% silt), orange-brown, wet.
35	☒	8-20-50/5"					GW		Well graded GRAVEL with silt and sand, (75% coarse to fine gravel, 15% coarse to fine sand, 10% silt), orange-brown, wet.
									Poorly graded GRAVEL with sand, (75% fine gravel, rounded and sub-angular, 20% coarse to medium sand, 5% silt), orange-brown, wet.
40	☒	9-20-50/4"	30			0.0	GM		Silty GRAVEL with sand, (40% coarse to fine gravel, rounded and sub-angular, 30% fine sand, 30% silt).
	☒	21-39-50/4"	40	RS-062602-03 (GW)	X	0.0	GM		Silty GRAVEL with sand, (65% coarse to fine gravel, 20% sand, 15% silt).
	☒	8-9-21	20			0.0	GM		Silty GRAVEL with sand, (65% coarse to fine gravel, 20% sand, 15% silt).
45	☒	27-50/6"	70			0.0	ML		SILT, (95% silt, 5% very fine sand), orange/grey-mottled, very stiff to hard, slightly moist.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 200.95 feet msl

LOG OF BORING RS-15A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-16

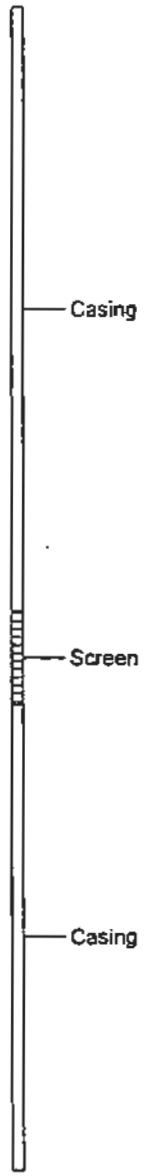
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/1/02 1245	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/1/02 1850	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 45 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	7-7-8	90	RS-070102-1		2000	ML		SILT with sand, (70% silt, 15% fine gravel, 15% coarse to fine sand), brown-grey mottled, medium stiff, slightly moist.
10	X	16-29-30	100	RS-070102-2		2000	GM		Silty GRAVEL, (80% coarse to fine gravel, 15% silt, 5% sand), brown, medium dense, wet.
	—			RS-070102-03 (GW)	X				
15	X	20-50/6"	10			2000	GM		Silty GRAVEL with sand, (60% fine gravel, 20% coarse to fine sand, 20% silt), brown, dense, wet, no odor.
20	X	8-8-16	30				GM		Silty GRAVEL with sand, (60% fine gravel, 20% coarse to fine sand, 20% silt), brown, medium dense, wet, no odor.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.17

LOG OF BORING RS-16

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-16

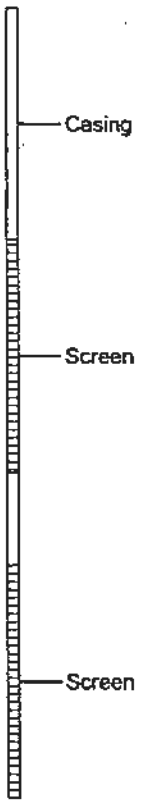
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/1/02 1245	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/1/02 1850	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 45 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	100/6"				222	SM		Silty SAND, (65% coarse to fine sand, 25% silt, 10% fine gravel), brown, very, wet.
30	☒								Filter pack sand. No native recovery.
35	☒	6-17-14	100	RS-070102-5 (GW)	X	5.0	GM		Silty GRAVEL with sand, (60% fine gravel, 30% silt, 10% medium to very fine sand), brown, loose to medium dense, wet.
40	☒	100/6"	0						No recovery.
				RS-070202-1 (GW)	X				
	☒	100/2"	5						Slough.
	☒	14-33-33	100	RS-070102-7	X		ML		SILT with sand, (80% silt, 15% fine sand, 5% fine gravel), brown.
45							ML		SILT, (90% silt, 10% very fine sand), blue-grey, moist.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 201.17

LOG OF BORING RS-16

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-17

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/11/02 1700	Drilling Method	: Geoprobe
Date/Time Completed	: 6/11/02 1740	Sampler Type	: 1" I.D. x 2' core barrel
Equipment	: Large Bore Geoprobe	Depth Of Water ATD	: NA
Drilling Company	: Cascade Drilling	Total Depth	: 11.5 feet bgs
Drilling Foreman	: Casey Goble		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0	X		75				GW		Sandy GRAVEL with silt, (50% gravel, 30% sand, 20% silt, trace organic matter), light brown, loose, slightly moist.
	X		60				ML		SILT with sand, (75% silt, 25% sand, trace organic matter), black/light grey with orange-brown mottling, moist.
5	X		100			10.1	ML		SILT with sand, (75% silt, 25% sand, trace organic matter), black/light grey with orange-brown mottling, moist.
	X		70				ML		SILT with sand, (75% silt, 25% sand, trace organic matter), black/light grey with orange-brown mottling, moist.
	X		65			5.5	GW-GM		Well graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), loose, very moist.
10	X		50				GW-GM		Well graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), loose, very moist. Refusal at 11.5 feet bgs

15

20

25

See boring log for RS-17A for lighology from 11.5 to 44.5 feet bgs.

TEMPORARY WELL INFORMATION

Ground Surface Elevation = 201.58 feet msl

LOG OF BORING RS-17

(Page 1 of 1)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-17A

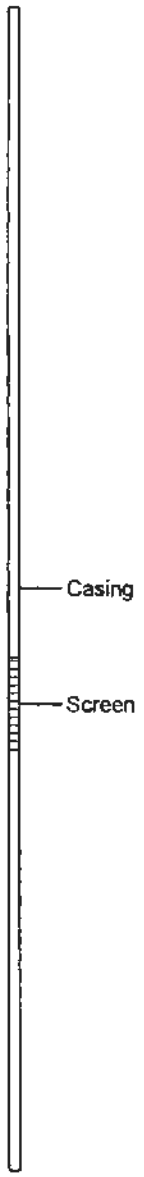
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/25/02 1115	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/25/02 1700	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 12 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 44.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									See Geoprobe Log completed at this location on 6/11/02 for complete lithology from 0 to 11.5 feet bgs.
5	X	10-12-12	100			0.0	GW-GM		Well graded GRAVEL with silt and sand, (70% coarse to fine gravel, sub-angular and sub-rounded, 20% coarse to fine sand, 10% silt), grey-brown, moist.
10	X	47-50/6"	100			0.0	GM		Silty GRAVEL, (75% coarse to fine gravel, 20% silt, 5% sand), brown-orange, dense, moist.
	X	NA	10				GM		Silty GRAVEL with sand, (60% coarse to fine gravel, 30% coarse to fine sand, 10% silt), light brown, dense, moist, becomes wet at 12.0' bgs.
15	X	NA	5	RS-062502-4 (GW)	X				Limited recovery.
20	X	50/6"				0.0			No soil logged.
25									



WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot, 2" Sand Pack: #2/12 sand
Ground Surface Elevation = 201.58 feet msl

LOG OF BORING RS-17A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-17A

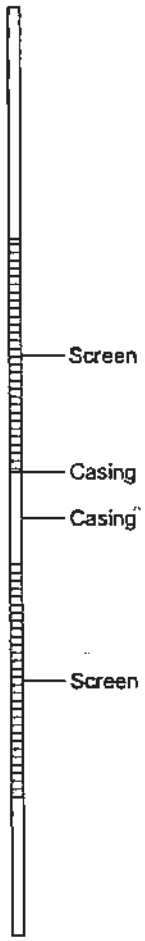
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/25/02 1115	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/25/02 1700	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 12 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 44.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	20-50/6"				0.5	GW		Well graded GRAVEL with sand, (70% coarse to fine gravel, sub-angular to sub-rounded, 25% sand, 5% silt), brown, dense, very moist.
30	X	65/6"	100			0.0	GW		Well graded GRAVEL with sand, (70% coarse to fine gravel, sub-angular to sub-rounded, 25% sand, 5% silt), brown, dense, very moist.
				RS-062502-05 (GW)	X				
35	X		80			0.0	GP		Poorly graded GRAVEL with sand, (80% fine gravel, sub-rounded, 15% coarse sand, 5% silt), light brown, dense, wet.
40	X		90	RS-062502-06 (GW)	X	0.0	GP		Poorly graded GRAVEL with sand, (80% fine gravel, sub-rounded, 15% coarse sand, 5% silt), light brown, wet. Note: Some filter sand from temporary well in sample.
	X		100			0.0	ML		SILT, (95% silt, 5% very fine sand, trace organic matter), blue-grey, moist.
45									
50									



WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot, 2" Sand Pack: #2/12 sand
Ground Surface Elevation = 201.58 feet msl

LOG OF BORING RS-17A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-18

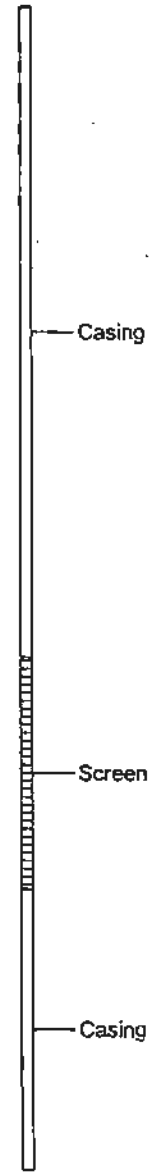
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Cyr/A. Morine

Date/Time Started	: 7/8/02 1315	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 0845	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.0
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
	X	3-6-7	100			0.0	ML		SILT with sand, (85% silt, 15% medium to fine sand, trace organic matter), orange-brown/grey mottled, soft to medium stiff, slightly moist, no odor.
5	X	5-7-7	100			0.0	ML		SILT, (95% silt, 5% very fine sand, trace organic matter), grey with brown mottling, medium stiff, slightly moist, no odor.
	X	5-16-14	100			0.0	ML		SILT with gravel, (70% silt, 25% coarse to fine gravel, 5% fine sand, trace organic matter), grey with brown mottling, stiff, slightly moist, no odor.
	X	10-17-21	100			0.0	GM		Silty GRAVEL with sand, (70% coarse to fine gravel, 15% medium to fine sand, 15% silt), grey with blue, purple, and brown mottles, dry, no odor.
10	X	10-11-17	80			0.0	GM		Silty GRAVEL with sand, (70% coarse to fine gravel, 15% medium to fine sand, 15% silt), brown with orange mottles, dry, no odor.
	X	25-25-28	100			0.0	GM		Silty GRAVEL with sand, (70% coarse to fine gravel, 15% medium to fine sand, 15% silt), orange-brown, slightly moist, no odor.
	X	25-21-25	100			0.0	GM		Silty GRAVEL, (75% coarse gravel, 15% silt, 15% coarse to fine sand), brown, very moist, no odor.
	X	22-33-44	100			0.0	GM		Silty GRAVEL with sand, (70% coarse to fine gravel, 15% medium to fine sand, 15% silt), brown, very moist, no odor.
15	X	35-27-28	100			0.0	GM		Silty GRAVEL, 75% coarse to fine gravel, 15% silt, 10% medium to fine sand), brown, wet, no odor.
				RS-070802-02 (GW)					
20	X								No soil logged.
	X	36-50/6"	70				GP-GM		Poorly graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to medium sand, 10% silt), brown with orange mottling, moist, dense, no odor.
	X	32-40-41	100				GM		Silty GRAVEL with sand, (65% coarse to fine gravel, 20% coarse to medium sand, 15% silt), brown, very moist, dense, no odor.
25	X	37-50/6"	100				GP-GM		



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.5 feet msl

LOG OF BORING RS-18

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-18

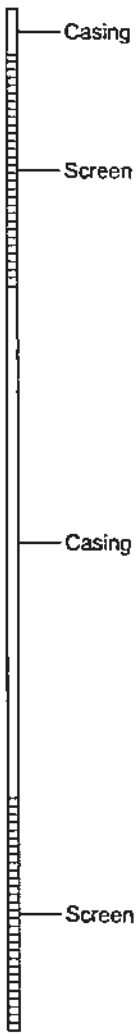
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Cyr/A. Morine

Date/Time Started	: 7/8/02 1315	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/9/02 0845	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.0
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25		37-50/6"	100				GP-GM		Poorly graded GRAVEL with silt and sand, (70% coarse to fine gravel, 20% coarse to fine sand, 10% silt), dark brown, moist, dense, no odor.
		21-30-32	100				GP-GM		
		18-27-50	100				SP		Poorly Graded SAND with gravel, (75% coarse to medium sand, 20% coarse to fine gravel, 5% silt), dark brown, very moist, no odor.
		41-50/6"	100	RS-0802-03 (GW)	X		SP		
30		38-50/6"					GP		Poorly Graded SAND with gravel, (75% coarse to medium sand, 20% coarse to fine gravel, 5% silt), dark brown, wet, no odor.
			100						Poorly graded GRAVEL with sand, (75% coarse to fine gravel, 20% coarse to medium sand, 5% silt), dark brown, wet, no odor.
									Filter pack sand.
35		5-11-22	100			1.1			Filter pack sand.
		35-50/6"	40			1.0	ML		Gravely SILT, (50% silt, 50% gravel), brown, hard, very moist, no odor.
		27-50/6"	100			1.0	ML		Gravelly SILT, (60% silt, 30% gravel, 10% fine sand), brown, wet, no odor.
		40-50/6"	100			0.9	SW		Well Graded Silty SAND with gravel, (40% coarse sand, 30% gravel, 30% silt), brown, wet, no odor.
40		16-19-25	100			0.8	ML		Gravely SILT, (50% silt, 25% gravel, 25% coarse sand), brown, stiff, wet, no odor.
		45-27-30	100				ML		Gravely SILT with sand, (50% silt, 40% gravel, 10% coarse sand), brown, stiff, wet, no odor.
		38-50/6"	100	RS-070902-02 (GW)	X		GM		Silty GRAVEL, (50% gravel, 50% silt), brown, dense, wet, no odor.
45		100/6" 100/6"	50				SM		Silty SAND with sand, (70% medium sand, 20% silt, 10% gravel), very dense, wet.
		100/6" 100/6"	100			1.0	ML GM		SILT with gravel, (85% silt, 10% coarse sand, 5% gravel), hard, wet, no odor.
		83-50/6"					ML		Silty GRAVEL, (60% gravel, 40% silt), very dense, wet, no odor.
									SILT, (95% silt, 5% very fine sand), blue-grey, hard, slightly moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.5 feet msl

LOG OF BORING RS-18

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-19

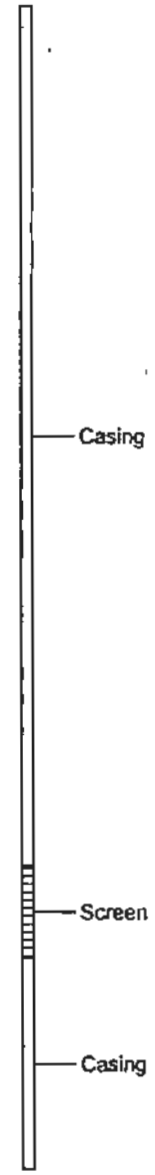
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/3/02 0800	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/8/02	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 16 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	6-9-12	100			0.0	ML		SILT with sand, (80% silt, 20% fine sand, trace organic matter), yellow-orange to light-grey/ mottled, moist, low plasticity.
10	X	70/6"	100			0.0	GM		Silty GRAVEL, (50% rounded to sub-rounded gravel, 40% silt; 10% medium to fine sand), light gray to yellow orange, very dense, moist.
15	X	80/6"	100			0.0	GP-GM		Poorly graded GRAVEL, with silt and sand, (70% rounded to sub-rounded gravel, 15% silt, 15% medium to fine sand), light grey-light brown, very dense, moist.
	—			RS-070302-01 (GW)	X				
20	X	35-35-55	100			0.0	SP		Poorly Graded SAND with gravel, (60% medium to fine sand, 40% coarse to fine, rounded gravel, traces of silt), light brown/yellowish orange, medium dense to dense, moist.
	X	19-50/6"	100			0.0	SP-SM		Poorly Graded SAND with silt and gravel, (50% medium to fine sand, 40% fine, sub-rounded gravel, 10% silt.), light brown, medium dense to dense, wet.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.50 feet msl

LOG OF BORING RS-19

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-19

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/3/02 0800	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/8/02	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 16 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	35-50/3"	100			0.0	GP		Poorly graded GRAVEL with sand, (60% coarse to fine sub-rounded gravel, 40% coarse to medium sand, traces of silt), light brown, medium dense, wet.
30	☒	30-50/6"	100	RS-070302-02 (GW)	X	0.0	GW		Well graded GRAVEL with sand, (75% coarse to fine gravel, 20% coarse to fine sand, 5% silt), light brown, medium dense, wet.
35	☒	100/6"					GP		Poorly graded GRAVEL with sand, (80% fine gravel, sub-angular to sub-rounded, 20% coarse sand, traces of silt), grey, very dense, wet.
40									Refusal, no recovery. Moved approximately five feet south of RS-19, completed RS-19A to 46 feet bgs. See boring log for RS-19A for lithology from 40 to 46 feet bgs.
45									
50									

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.50 feet msl

LOG OF BORING RS-19

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-19A

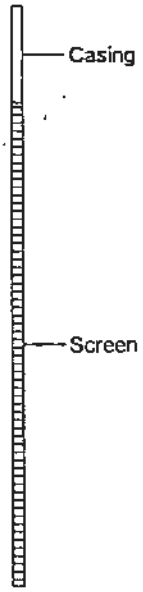
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/8/02 1245	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/8/02 1850	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46 feet bgs
Drilling Foreman	: Frank Scott		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
38									See boring log for RS-19 for lithology from 0 to 40 feet bgs.
		9-50/6"	10			0.0	GM		Silty GRAVEL with sand, (75% coarse to fine gravel, 15% medium to fine sand, 10% silt), light brown, dense, wet, no odor.
		5/1"	10			0.9	GM		Silty GRAVEL, 80% coarse to fine gravel, 20% silt, 5% medium to fine sand), light brown, very dense, wet, no odor.
43		100/5"	80			10.6	GM		Silty GRAVEL, (80% coarse to fine gravel, 20% silt, 5% medium to fine sand), light brown, very dense, wet, no odor.
		41-50/2"	60	RS-070802-01 (GW)	X	0.0	GM		Silty GRAVEL, (80% coarse to fine gravel, 20% silt, 5% medium to fine sand), light reddish brown, very dense; wet, no odor.
		14-45-50/2"	90			0.0	ML		SILT, (90% silt and clay, 10% fine sand), mottled grey to reddish brown, dense, dry, no odor.
		24-62/6"	90			0.0	ML		SILT, (90% silt and clay, 10% fine sand), mottled grey to reddish brown, very stiff to hard, dry, no odor.
						0.0			SILT, (100% silt), greenish grey, hard, dry, no odor.
48									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.50 feet msl

LOG OF BORING RS-19A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-20

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/28/02 0840	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/28/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 43 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	8-7-8	20				ML		SILT, (90% silt, 10% fine sand, trace organics), medium to dark brown, trace blue-grey silt, medium stiff, wet.
10	X	3-3-4	100				SP		Silty SAND, (75% very fine sand, 25% silt, trace organics), blue-grey, loose, wet.
15	X	10-38-50/4"	60				GW-GM		Well graded GRAVEL with silt and sand, (60% coarse to fine gravel, 30% coarse to fine sand, 10% silt), medium to light brown, medium dense to dense, wet.
20	X	38-50/6"	100				SP		Poorly graded SAND with gravel, (70% coarse to medium sand, 30% very fine gravel, trace silt), medium, brown, medium dense to dense, wet.
25									

Casing

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 191.4 feet msl

LOG OF BORING RS-20

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-20

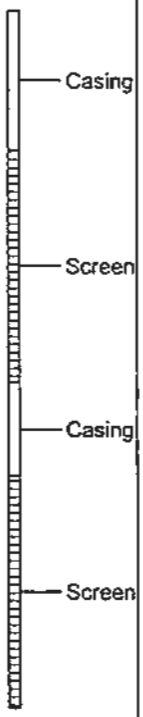
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/28/02 0840	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/28/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 43 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	5-5-10	40				GW-GM		Well graded GRAVEL with silt and sand, (65% coarse to fine, sub-angular to sub-rounded gravel, 25% coarse to fine sand, 10% silt), brown, loose, wet.
30	X	10-32-50/6"	80	RS-070202-02 (GW)	X		GM		Silty GRAVEL with sand, (70% coarse to fine, sub-angular to rounded, gravel, 15% coarse to fine sand, 15% silt), medium brown, medium dense to dense, wet.
35	X	10-20-50/6"	20				GM		Filter pack, no recovery.
	—			RS-070202-6 (GW)	X				
40	X	19-29-50/5"	100				ML		SILT, (70% silt, 25% black, fiberous organics (wood), 5% very fine sand), dark grey-black, stiff, moist, medium plasticity.
	X	19-35-50/4"	100				ML		SILT, (100% silt), dark blue-grey, stiff, moist.
45									
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 191.4 feet msl

LOG OF BORING RS-20

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-21

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/26/02 1515	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/26/02	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 11 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 42 feet bgs
Drilling Foreman	: Brian Gosa		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	8-10-15	100				ML		SILT (95 silt 5% fine sand, trace organics), dark brown to grey with orange mottling, stiff, wet.
10	X	15-26-30	100				GW-GM		Well graded GRAVELwith silt and sand, 75% coarse to fine gravel, sub-rounded to sub-angular, 15% coarse to fine sand, 10% silt), greenish grey with orange-brown mottling, medium dense, wet.
15	X	50/6"	100				GW		Well graded GRAVEL, (85% coarse to fine gravel, sub-rounded to angular, 10% coarse sand, 5% silt), dense, wet.
20	X	27-50/6"	100				SP		Poorly graded SAND, (90% fine sand, 5% coarse gravel, 5% silt), medium brown, dense, moist.
25									

Casing

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 192.3 feet msl

LOG OF BORING RS-21

FARALLON CONSULTING
320 3rd Avenue NE
Issoquah, WA 98027

LOG OF BORING RS-21

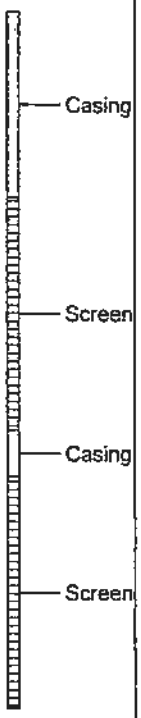
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/26/02 1515	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/26/02	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 11 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 42 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	37-50/5"	100				GM GP		Well Graded SAND, (90% coarse to fine sand, 5% very fine gravel, 5% silt), brown. Poorly graded GRAVEL with silt, (80% coarse gravel, 10% sand, 10% silt), orange-brown, dense, wet.
30	X	70/6"	100	RS-062602-4 (GW)	X		GW-GM SW		Well graded GRAVEL with silt and sand, (75% coarse to fine gravel, 15% sand, 10% silt), orange-brown, wet. Grades to.... Well graded SAND with gravel, (80% coarse to fine sand, 15% fine gravel, 5% silt), medium brown, very dense, wet.
35	X	8-10-11	100						Filter pack, no recovery.
				RS-062602-5 (GW)	X				
40	X	31-50/5"					ML		SILT with sand, (80% silt, 20% very fine sand), blue-grey, low plasticity, hard, slightly moist. Sand immediately above silt is strongly oxidized (reddish brown).
45									
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 192.3 feet msl

LOG OF BORING RS-21

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FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-22

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/27/02 1015	Drilling Method	: Hollow Stem Auger
Date/Time Completed	:	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 9.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 41.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	8-10-11	100			12.7	ML		SILT, (90% silt, 10% very fine sand, trace organics, rootlets), brown with grey-orange mottling, medium stiff, moist.
	X	5-10-8	100			20.1	ML		SILT, (90% silt, 10% very fine sand, trace organic matter), grey with brown mottling, moist.
	X	3-4-5	100			18.1	ML		SILT, (90% silt, 10% very fine sand, trace organic matter, trace course sand, and very fine gravel), light grey with brown mottling, moist, low plasticity.
10	X	11-21-35	100			36.8	SW-GM		Well graded GRAVEL with silt and sand, (75% coarse to fine, sub-rounded to sub-angular gravel, 15% coarse to fine sand, 10% silt), grey, medium dense, wet.
	X	31-42-50/6"	100			11.4	GW		Well graded GRAVEL with sand, (75% coarse to fine gravel, 20% coarse to fine sand, 5% silt), grey/orange-brown, dense, wet.
	X	21-29-36	100						Well graded GRAVEL with sand, (75% coarse to fine gravel, 20% coarse to fine sand, 5% silt), orange-brown, medium dense to dense, wet.
15	X	70/6"	50			65.2	GP		Poorly graded GRAVEL with sand, (60% fine gravel, 35% coarse to fine sand, 5% silt), grey, very dense, wet.

Casing

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 193.5 Feet msl

LOG OF BORING RS-22

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-22

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/27/02 1015	Drilling Method	: Hollow Stem Auger
Date/Time Completed	:	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 9.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 41.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
15	☒	75/6"					SP		Poorly graded SAND, (85% coarse sand, 10% fine gravel, 5% silt), brown, very dense, wet.
	☒	10-19-40	90				SP		Poorly graded SAND with silt and gravel, (75% coarse sand, 15% fine gravel, 10% silt), green-grey, dense, wet.
	☒	40-50/6"	100			52.9	SM SP-SM		Silty SAND, (70% fine sand, 20% silt, 10% coarse to fine gravel), light brown, dense, wet.
	☒		0						Poorly graded SAND with silt, (80% coarse sand, 10% fine gravel, 10% silt), light brown, dense, wet.
20									No data logged. No recovery.
	☒	44-50/5"	50				SM		Silty SAND with gravel, (65% fine sand, 20% silt, 15% coarse to fine gravel), light brown, dense, wet.
	☒	70/6"	0						
	☒	35-50/5"	25				SW		Well graded SAND, (90% coarse to fine sand, 5% silt, 5% fine gravel), light brown, dense, wet.
25	☒	80/6"	50				SP		Poorly graded SAND, (50% very coarse sand, 45% fine gravel, 5% silt), light brown, very dense, wet.
	☒	65/6"	10			19.3	SW		
	☒	85/6"	100				SW		Well graded SAND, (85% coarse to fine sand, 10% fine gravel, 5% silt), brown-grey, very dense, wet.
	☒	100/6"	100				SW		Well graded SAND, (85% coarse to fine sand, 10% fine gravel, 5% silt), brown-grey, very dense, wet.
	☒	100/5"	100	RS-062702-1 (GW)	X		SW		Well graded SAND, (85% coarse to fine sand, 10% fine gravel, 5% silt), brown-grey, very dense, wet.
30									

Casing

Screen

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 193.5 Feet msl

LOG OF BORING RS-22

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FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-22

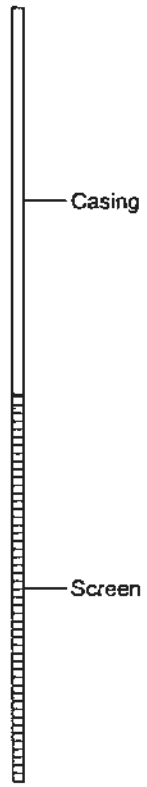
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/27/02 1015	Drilling Method	: Hollow Stem Auger
Date/Time Completed	:	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 9.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 41.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
30			0						Filter pack from temporary well.
			0						Filter pack from temporary well.
		20-50/6"	20				GW-GM		Well graded GRAVEL with silt and sand, (50% coarse to fine gravel, 40% fine sand, 15% silt), brown, very moist.
35		10-21-50	40			71.0	GW-GM		Well graded GRAVEL with silt and sand, (60% coarse to fine gravel, 25% coarse to fine sand, 15% silt), brown, medium dense to dense, wet.
		31-50/6"	75				GW-GM		Well graded GRAVEL with silt (70% coarse to fine gravel, 20% silt, 10% sand), orange-brown, medium dense to dense, wet.
		35-50/6"		RS-062702-2 (GW)	X		GW		Well graded GRAVEL with silt, (70% coarse to fine, sub-angular rounded gravel, 20% coarse to fine sand, 10% silt), dark orange-brown, medium dense to dense, wet.
		100/6"							
		90/6"					ML		
40		35-35-50/5"	100			9.1	ML		SILT, (95 % silt, 5% very fine sand, trace fine gravel) blue-grey, hard, low plasticity, moist.
45									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 193.5 Feet msl

LOG OF BORING RS-22

(Page 3 of 3)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-23

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender/N. Colby

Date/Time Started	: 6/28/02 0745	Drilling Method	: Hollow Stem Auger
Date/Time Completed	:	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 21 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	8-10-10	100				ML		SILT with sand, (85% silt, 15% very fine sand, trace organic matter), dark brown with grey-orange mottling, stiff, moist, low plasticity.
10	X	25-50/6"	75				ML		SILT with sand, (85% silt, 15% very fine sand, trace organic matter), dark brown with grey-orange mottling, stiff, moist, low plasticity.
							SP		Well graded GRAVEL with silt and sand, (75% course to fine sub-rounded to sub-angular gravel, 15% course to fine sand, 10% silt), grey, wet.
15	X	50/6"					GP		Poorly graded GRAVEL with sand, (75% fine angular to sub-angular gravel, minor coarse, 20% coarse sand, 5% silt), brown-grey, dense, wet.
20	X	100/6"					GP		Poorly graded GRAVEL with sand, (80% fine gravel, 15% coarse to fine sand, 5% silt), brown, very dense, wet.

Refusal at 21 feet bgs.
See boring log for RS-23A for lithology from 20 to 41 feet bgs.

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 194.90 Feet msl

LOG OF BORING RS-23

(Page 1 of 1)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-23A

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/28/02 0840	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/28/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 41 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									See boring log RS-23 completed on 6/28/02 for lithology from 0 to 20 feet bgs.
5									
10									
15									
20									
25									

Casing

TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 194.9 Feet msl

LOG OF BORING RS-23A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-23A

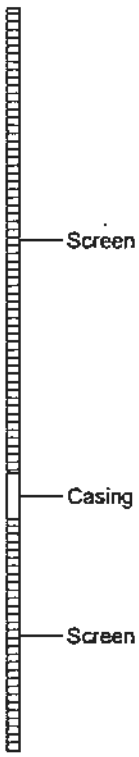
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 6/28/02 0840	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 6/28/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 41 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒		100				GW-GM		Well graded GRAVEL with silt and sand, (80% coarse to fine, sub-angular to sub-rounded gravel, 10% coarse to fine sand, 10% silt), brown, very dense, wet.
30	☒		75	RS-062802-1 (GW)	X		SP		Poorly Graded SAND (100% medium sand), dark brown, very dense, wet.
35	☒		90						Filter pack, no recovery.
	☒		50	RS-062802-3 (GW)	X				
40	☒		0				ML		Gravelly SILT (60% blue silt, 40 % fine gravel), wet.
	☒		100				ML		SILT (100% silt, trace sand), blue, hard, moist.
45									
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 194.9 Feet msl

LOG OF BORING RS-23A

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-24

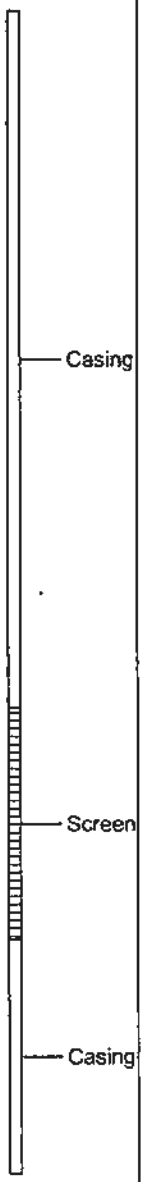
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/17/02 0900	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/17/02 1400	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	28-24-28	100			2.4	GM		Silty GRAVEL with sand, (45% coarse to fine, rounded to sub-angular gravel, 35% coarse to fine sand, 20% silt, trace clay, trace organics (grass)), light brown with reddish-grey mottling, medium dense, slightly moist, no odor
10	X	25-25-25	100			2.0	GW		Well graded GRAVEL with sand, (60% coarse to fine, rounded to sub-angular gravel, 35% coarse to fine sand, 5% silt), brown, medium dense, moist, no odor.
15	X	40-29-14	100	RS-071702-01 (GW)	X	2.8	SP		Poorly graded SAND with gravel, (75% coarse to fine sand, 20% coarse to fine gravel, 5% silt), light brown/grey with reddish tint, medium dense to dense, very moist to wet, no odor. Clear interval of reddish fine sand to brown gravel at 16' bgs.
20	X	10-21-22	100			2.3	SP		Poorly graded SAND with gravel, (75% coarse to fine sand, 20% coarse to fine gravel, 5% silt), reddish-brown, loose to medium dense, wet, no odor.
25									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.56 Feet msl

LOG OF BORING RS-24

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF BORING RS-24

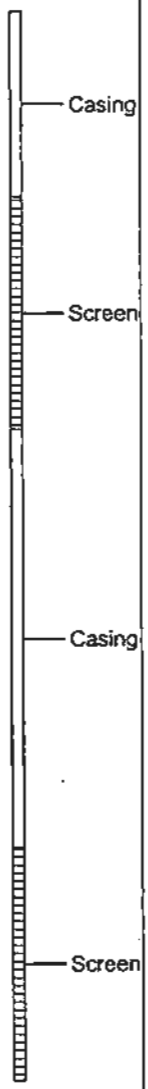
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/17/02 0900	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/17/02 1400	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	☒	25-31-50/4"	100				SP		Poorly graded SAND, (95% medium to fine sand, 5% medium to fine gravel), brown, medium dense to dense, wet, no odor.
30	☒	27-50/6"	100	RS-071702-02 (GW)	X		SP		Poorly graded SAND with gravel, (75% medium to fine sand, 20% coarse to medium gravel, 5% silt), brown, medium dense to dense, wet, no odor.
35	☒	70/6"	20				GM		Silty GRAVEL with sand, (40% medium to fine gravel, 35% coarse to fine sand, 25% silt), brown, very dense, wet, no odor.
40	☒	50/6"	100			0.0	SP		Poorly graded SAND, (90% medium to fine sand, 5% medium to fine gravel, 5% silt), brown, dense, wet, no odor.
	☒	37-50/6"	100			0.0	GW-GM		Well graded GRAVEL with silt and sand, (50% coarse to fine gravel, 40% coarse to fine sand, 10% silt), brown, dense, wet, no odor.
	☒	41-50/6"	100	RS-071702-03 (GW)	X	0.0	GM		Silty GRAVEL with sand (60% coarse to fine gravel, 25% coarse to fine sand, 15% silt), brown/orange, dense, wet, no odor.
45	☒	22-50/6"	100			0.0	ML		SILT, (85% silt, 15% fine sand), brown-grey, very stiff to hard, moist, no odor.
	☒	20-22-40	100			0.0	SP-SM		Poorly graded SAND with silt, (90% fine sand, 10% silt), dark grey, dense, moist, no odor.
	☒	15-18-26	100			0.0	ML		SILT, (85% silt, 15% very fine sand), blue-grey, stiff to very stiff, moist, no odor.
50									



TEMPORARY WELL INFORMATION

Casing: 2" PVC
Screen: 0.010-slot Sand Pack: #2/12 sand
Ground Surface Elevation = 203.56 Feet msl

LOG OF BORING RS-24

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-17

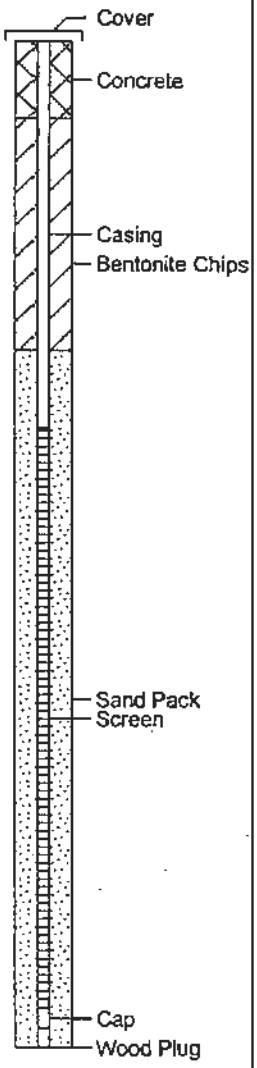
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/18/02 1400	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/18/02 1530	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 26.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									See RS-8/RS-8A/ and MW-18 for lithology. No samples collected
5									
10									
15									
20									
25									
30									



WELL INFORMATION

Cover: 8" cast iron
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite chips
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation= 201.52 ft msl

LOG OF WELL MW-17

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FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-18

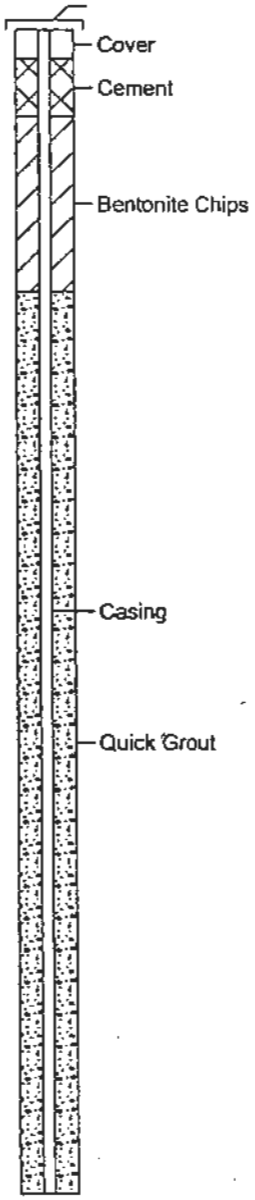
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/18/02 0745	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/18/02 1315	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									Refer to boring log for RS-8 and RS-8A for complete lithology.
5	X	3-6-9	100	RS-071802-01	X	0.6	ML		SILT, (90% silt, 5% very fine sand, 5% fine gravel, trace organic matter.), grey-brown with orange mottling, trace blue-grey mottling, soft, moist.
10	X	12-18-31	90	RS-071802-02	X	0.4	GM		Silty GRAVEL with sand, (65% coarse to fine gravel, 15% coarse to fine sand, 20% silt.), orange-light brown-gray mottling, medium dense, moist.
15									
20									



WELL INFORMATION

Cover: 8" cast iron
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite quick grout/Bentonite chips
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of casing elevation = 201.52 feet msl

LOG OF WELL MW-18

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-18

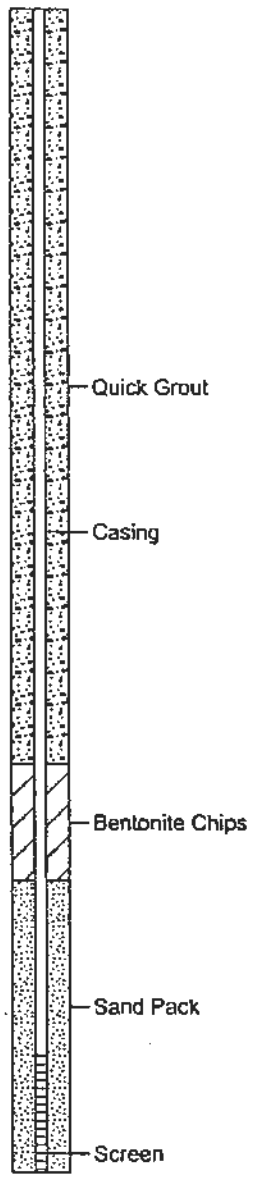
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/18/02 0745	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/18/02 1315	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20									
25									
30									
35									
40									



WELL INFORMATION

Cover: 8" cast iron — Cap: Concrete
Casing: 2" PVC — Seal: Bentonite quick grout/Bentonite chips
Screen: 0.010-slot — Sand Pack: #2/12 sand
Top of casing elevation = 201.52 feet msl

LOG OF WELL MW-18

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-18

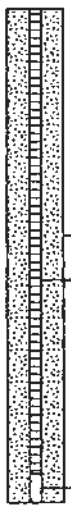
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/18/02 0745	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/18/02 1315	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14.5 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 48.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40									
45	X	10-27-50/6"	100	RS-071802-03	X	0.2	SW		Well graded SAND (90% fine-coarse sand, 5% silt, 5% fine gravel) orangey-brown, medium dense to dense, wet. Gradational contact with silty GRAVEL.
							GM		Silty GRAVEL with sand (65% fine coarse gravel, 20% silt, 15% fine-coarse sand) orangey-brown, with gray-green silt, medium dense to dense, wet.
	X	30-30-50/6"	100				ML		
							SP		Poorly graded SAND, (90% fine-medium sand, 5% silt, 5% fine gravel), medium brown, medium dense, wet. Sharp contact with silt.
	X	17-21-36	100				ML		SILT with sand (85% silt, 15% very fine sand) gray-green with orange striations, stiff-hard, slightly moist.
50									SILT - blue gray, stiff to hard, slightly moist
55									
60									



WELL INFORMATION

Cover: 8" cast iron
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite quick grout/Bentonite chips
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of casing elevation = 201.52 feet msl

LOG OF WELL MW-18

(Page 3 of 3)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-19

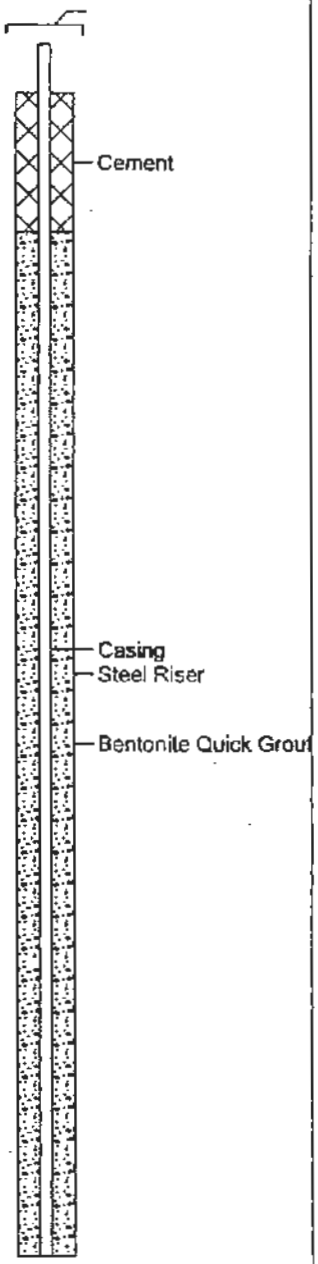
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/25/02 0745	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/25/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									Refer to boring log for RS-15 for complete lithology.
5	X	4-5-9	100	RS-072502-01	X		ML		SILT, (95% silt, 5% very fine sand, 5% fine sand, trace organics, rootlets), orangey-brown, gray mottled, medium stiff, moist, no odor, low plasticity.
10	X	5-8-31	75	RS-072502-02	X		ML		sandy SILT with gravel, (40% silt, 40% fine sand, 20% fine-coarse gravel) dark gray - medium brown, soft to stiff, very moist.
15									
20									
25									



WELL INFORMATION

Cover: 3 Foot Steel Riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Benonite Pellets
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 203.17 feet msl

LOG OF WELL MW-19

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-19

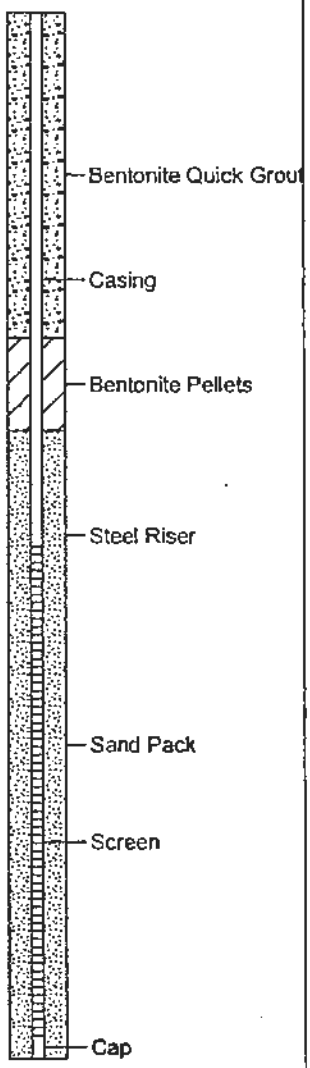
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/25/02 0745	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/25/02 1200	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25									
30									
35									
40									
	☒	23-50/6		RS-072502-03	X		SP		Heaving sands
45									
	☒	28-20-50/6	100		X		ML ML		SILT (90% silt, 10% very fine sand) Orange/brown, stiff, moist. In contact with SILT (95% silt/clay, 5% very fine sand) blue/grey, slightly moist, very stiff to hard, no odor.
50									



WELL INFORMATION

Cover: 3 Foot Steel Riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellets
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 203.17 feet msl

LOG OF WELL MW-19

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FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-20

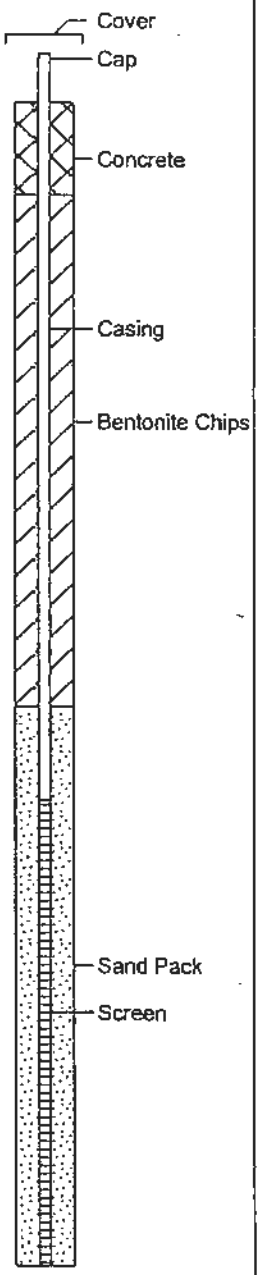
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/19/02 0730	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/19/02 0930	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 17.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 26.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6/6/6	% Recovery	Sample ID	Samples Analyzed	PID (units)	USCS	GRAPHIC	DESCRIPTION
0									No samples collected between 0-20' bgs. See boring log for RS-17 and RS-17A for lithology. This well is located approximately 5' south of above borehole.
5									
10									
15									
20	☒	30-50/6	100			0.4	GM		Silty GRAVEL with sand (60% fine-coarse gravel, 20% fine-coarse sand, 20% silt) medium brown, medium dense to dense, wet.
25									



WELL INFORMATION

Cover: 3' steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite chips
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 203.98 feet msl

LOG OF WELL MW-20

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-20

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/19/02 0730	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/19/02 0930	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 17.0 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 26.0 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6/6/6	% Recovery	Sample ID	Samples Analyzed	PID (units)	USCS	GRAPHIC	DESCRIPTION
25		23-50/6	100			0.2	GW		Well graded GRAVEL with sand, (60% fine-coarse gravel, 35% fine coarse sand, 5% silt), medium brown, medium dense to dense, wet.
30									
35									
40									
45									
50									

Sand Pack

WELL INFORMATION

Cover: 3' steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite chips
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 203.98 feet msl

LOG OF WELL MW-20

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FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-21

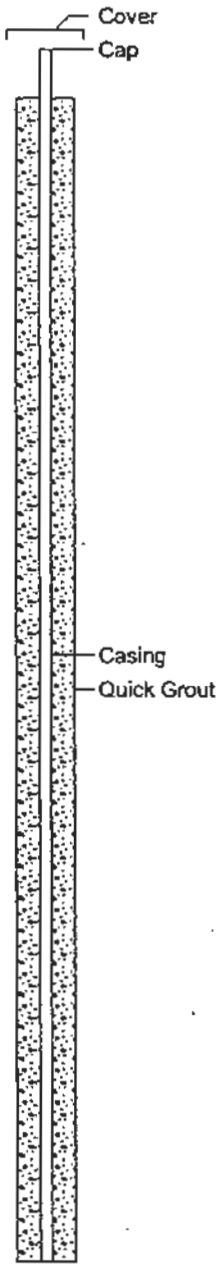
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/22/02 1015	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/22/02 1630	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Forman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									(See boring log for RS-17/17A for lithology)
5	X	5-7-8	100	RS-072202-01	X	0.0	ML		sandy SILT, (70% silt, 30% very fine sand, trace organics (rootlets)), light gray with orange-brown mottling, medium stiff, slightly moist.
10	X	14-28-30	90	RS-072202-02	X	0.0	GM		silty GRAVEL with sand (60% fine-coarse gravel, 20% silt, 20% fine-coarse sand) grey/light brown, medium dense, moist, lower portion very moist.
15									
20									
25									



WELL INFORMATION

Cover: 31 steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellets
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 204.29 feet msl

LOG OF WELL MW-21

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-21

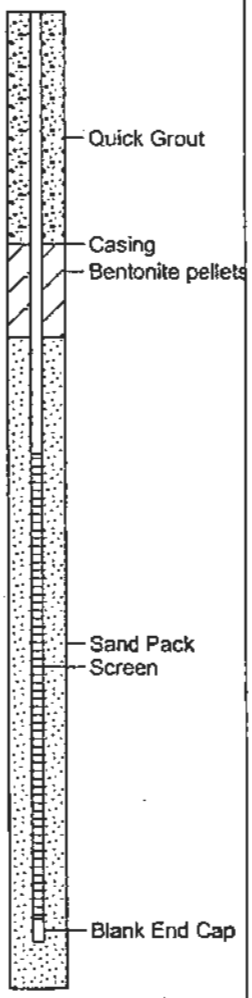
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: J. Pender

Date/Time Started	: 7/22/02 1015	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/22/02 1630	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 46.0 feet bgs
Drilling Foman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25									
30									
35									
40									
	X	20-35-50/6	30	RS-072202-03	X		ML		sandy SILT (80% silt, 20% very fine sand) orangey-brown, very stiff to hard, slightly moist.
45	X	23-31-50/6	100				ML		SILT, (90% silt, 10% very fine sand), blue gray, hard, moist.
50									



WELL INFORMATION

Cover: 31 steel riser
Casing: 2" PVC
Screen: 0.010-slot
Top of Casing Elevation = 204.29 feet msl

Cap: Concrete
Seal: Bentonite Quick Grout/Bentonite Pellets
Sand Pack: #2/12 sand

LOG OF WELL MW-21

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-22

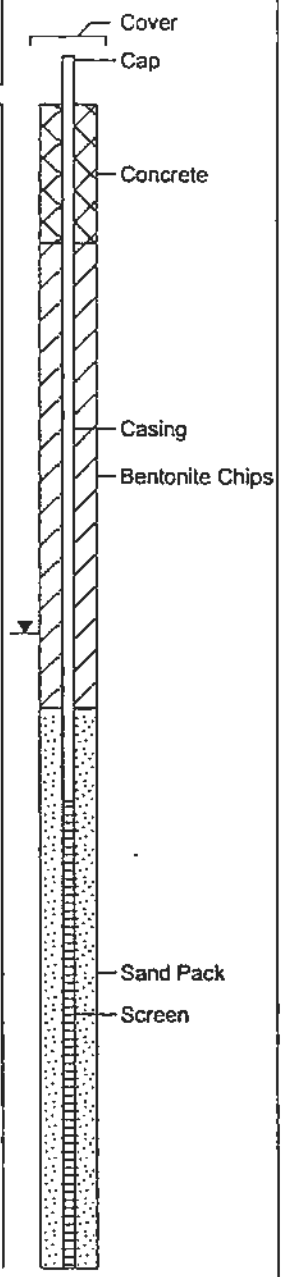
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/23/02 0730	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/23/02 0900	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 25.5 feet bgs
Drilling Foman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									Refer to RS-18 boring logs for lithology.
									No samples collected on MW-22
5									
10									
15									
20									
25									



WELL INFORMATION

Cover: 3' steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Chips/Bentonite Quick Grout
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 206.57

LOG OF WELL MW-22

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-22

S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/23/02 0730	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/23/02 0900	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 14 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 25.5 feet bgs
Drilling Forman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25									
30									
35									
40									
45									
50									

Sand Pack
Blank End Cap

WELL INFORMATION

Cover: 3' steel riser
Casing: 2" PVC
Screen: 0.010-slot
Top of Casing Elevation = 206.57

Cap: Concrete
Seal: Bentonite Chips/Bentonite Quick Grout
Sand Pack: #2/12 sand

LOG OF WELL MW-22

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FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-23

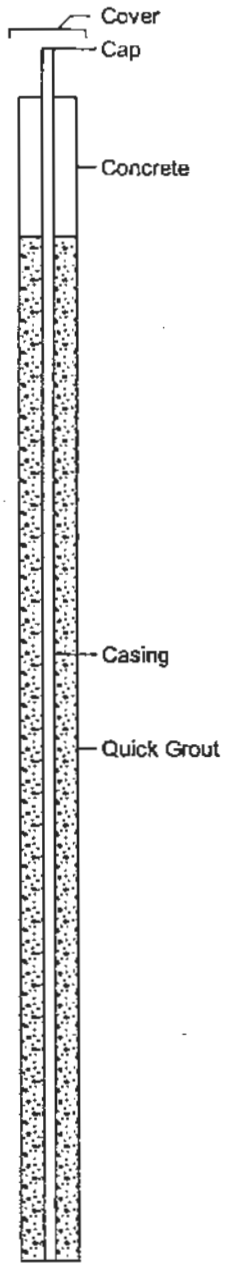
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/23/02 0950	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/24/02 1035	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									Refer to boring log RS-18 for complete lithology.
5	X	4-5-5	100	RS-072302-01	X	5.4	ML		Gravely SILT (65% silt, 30% coarse to fine gravel, 5% coarse to very fine sand), slightly moist, grey/light brown, medium stiff, no odor.
10	X	19-50/6"	50	RS-072302-02	X	6.5	GM		Silty GRAVEL (65% coarse to fine gravel, 25% silt, 10% coarse to fine sand), brown, very moist, medium dense to dense, no odor.
15									
20									
25									



WELL INFORMATION

Cover: 3" steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellet s
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 206.51 feet msl

LOG OF WELL MW-23

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-23

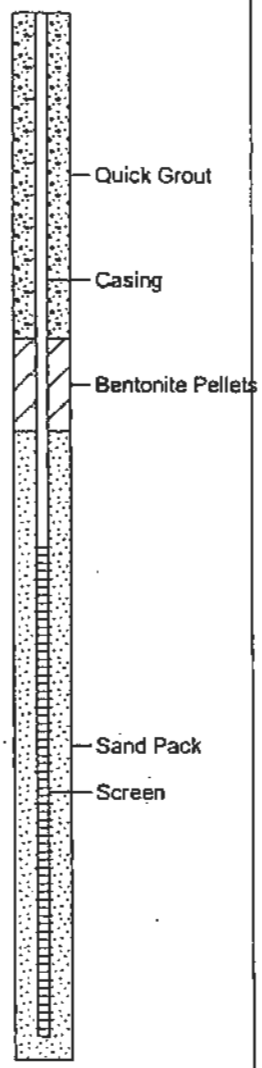
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: A. Morine

Date/Time Started	: 7/23/02 0950	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/24/02 1035	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 47.5 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25									
30									
35									
40									
45	X	23-50/6"	100	RS-092302-03	Y		ML		SILT (90% silt, 10% very fine sand), grey/light brown, very stiff, moist, no odor
	X	27-50/6"	50				ML		SILT (95% blue-grey silt, 15% very fine sand) moist, brown, no odor. Contact at 46-46.5'
							ML		SILT, blue-gray.
50									



WELL INFORMATION

Cover: 3" steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellet s
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 206.51 feet msl

LOG OF WELL MW-23

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-24

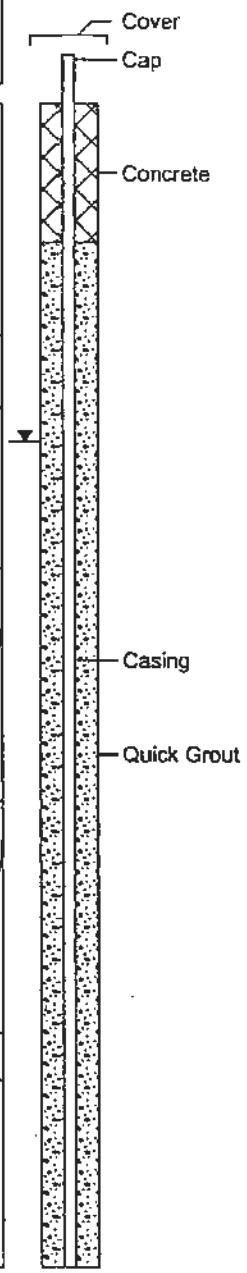
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: Jim Pender

Date/Time Started	: 7/24/02 1315	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/24/02 1745	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46 feet bgs
Drilling Forman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	6-7-7	100	RS-072402-01	X	0.0	ML		Sandy, SILT (60% silt, 25% fine-coarse sand, 15% fine-coarse gravel) medium grey, medium stiff, slightly moist.
10	X	31-50/6"	25	RS-072402-02	X	0.0	GM		stiff, Silty GRAVEL with sand (60% fine gravel, 25% fine-coarse sand, 15% silt) medium brown, medium dense to dense, wet. (Cobbles likely present)
15	X	26-50/6"	50			0.0	GW-GM		Well graded GRAVEL with silt and sand (70% fine-coarse gravel, 20% fine sand, 10% silt) medium brown, medium dense to dense, wet. (Cobbles likely present)
20	X	27-50/6"							Cobble stuck in sampler.
25									



WELL INFORMATION

Cover: 3' steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellets
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 205.96 feet msl

LOG OF WELL MW-24

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-24

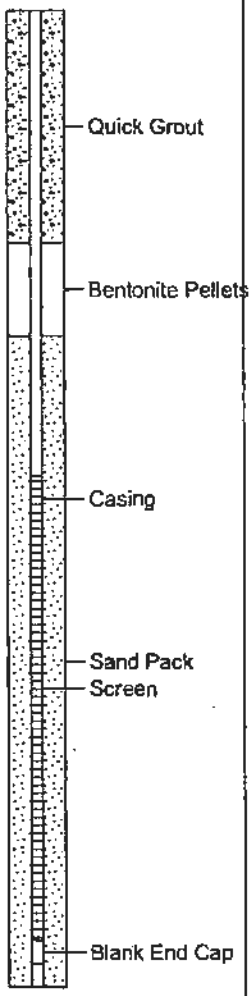
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: Jim Pender

Date/Time Started	: 7/24/02 1315	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/24/02 1745	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	: 10 feet bgs
Drilling Company	: Cascade Drilling	Total Depth	: 46 feet bgs
Drilling Forman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25	X	18-23-27	100	RS-072402-03	X	0.0	SP-SM		Poorly graded SAND with silt (90% fine sand, 10% silt, trace fine gravel/coarse sand at bottom of interval) medium brown, medium dense, wet.
30	X	25-50/6"	80			0.0	SW SM		Well graded SAND with gravel (70% fine-coarse sand, 25% fine gravel, 5% silt) brown, medium dense to dense, wet. In contact with Silty SAND with gravel (65% coarse to fine sand, 20% coarse to fine gravel, 15% silt) light brown, medium dense to dense, wet.
35	X	21-50/6"	0						(Heaving sands)
40	X	31-50/6"	<10				GM		Heave, cobble in sampler. Silty GRAVEL with sand (65% gravel, 15% silt, 20% coarse to fine sand) brown, dense, wet.
45	X	9-18-31	100	RS-072402-04	X	0.0	GM ML		Silty GRAVEL with sand (60% fine gravel, 25% silt, 15% coarse to fine sand), medium-brown, medium-dense, wet. In contact with SILT (90% silt, 10% medium to fine sand) blue-grey, stiff to very stiff, moist.
50									



WELL INFORMATION

Cover: 3' steel riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellets
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 205.96 feet msl

LOG OF WELL MW-24

(Page 2 of 2)

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-25

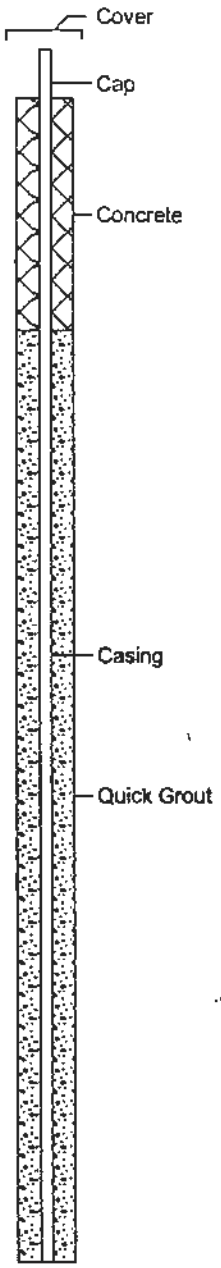
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: Adam Morine

Date/Time Started	: 7/29/02 1030	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/29/02 1500	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 44 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0									
5	X	8-9-7	10	RS-072902-01	X		SP		*Note: This sample is probably slough Poorly graded SAND (95% fine to coarse sand, 5% fine gravel), dry, dark brown, trace organics, no odor, loose.
10	X	19-11-5	100	RS-072902-02	X	0.0	GW		Well graded GRAVEL with sand (50% coarse to fine gravel, 45% coarse to fine sand, 5% silt), very moist (at bottom), dark brown, medium dense, no odor.
15									
20									
25									



WELL INFORMATION

Cover: 3' Steel Riser
Cap: Concrete
Casing: 2" PVC
Seal: Bentonite Quick Grout/Bentonite Pellets
Screen: 0.010-slot
Sand Pack: #2/12 sand
Top of Casing Elevation = 195.68 feet msl

LOG OF WELL MW-25

FARALLON CONSULTING
320 3rd Avenue NE
Issaquah, WA 98027

LOG OF WELL MW-25

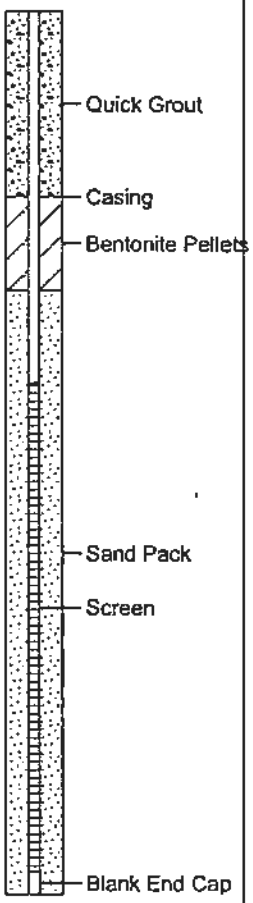
S.C. Breen
Hamilton/LaBree Rds.
Chehalis, WA

Farallon PN: 734-001

Logged By: Adam Morine

Date/Time Started	: 7/29/02 1030	Drilling Method	: Hollow Stem Auger
Date/Time Completed	: 7/29/02 1500	Sampler Type	: D&M SS 300 lb. hammer
Equipment	: CME 75	Depth Of Water ATD	:
Drilling Company	: Cascade Drilling	Total Depth	: 44 feet bgs
Drilling Foreman	: Brian Gose		

Depth in Feet	Sample Interval	Blow Counts 6-6-6	% Recovery	Sample ID	Samples Analyzed	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
25									
30									
35	X	33-30/6"	100			0.0	SW		Well graded SAND with gravel (70% coarse to fine sand, 25% coarse to fine Gravel, 5% silt), light brown, medium dense, wet, no odor.
40	X	37-50/5"	100	RS-072902-03			GM		Silty GRAVEL with sand (40% coarse to fine gravel, 35% coarse to fine sand, 25% silt), light brown/tan, medium dense to dense, wet, no odor.
	X	30-50/3"	100				SM		
	X	23-23-30	100				SM		Silty SAND (70% coarse to fine sand, 20% silt, 10% medium to fine gravel), light brown, medium dense to dense, wet, no odor.
	X	18-26-50/4	100				ML		Silty SAND (70% coarse to fine sand, 95% of sand is fine to very fine, 20% silt, 5% coarse to fine gravel), red/orange/light brown, medium dense, slightly moist, no odor.
45									SILT (95% silt, 5% coarse to very fine sand) blue/grey, very stiff to hard, slightly moist, no odor, trace organics.
50									



WELL INFORMATION

Cover: 3' Steel Riser
Casing: 2" PVC
Screen: 0.010-slot
Top of Casing Elevation = 195.68 feet msl

Cap: Concrete
Seal: Bentonite Quick Grout/Bentonite Pellets
Sand Pack: #2/12 sand

LOG OF WELL MW-25

08_URS Well Logs 2003

Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-500

Sheet 1 of 1

Date(s) Drilled	8/18/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	32.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Olive-gray SILT - dry, non-plastic, some fine sand					
			500				Gray sandy SILT - wet, loose		0		1030	03344600
							Light olive-gray SILT - stiff, slightly moist, mottled, oxidized					
			A						0		1035	03344601
	5		B		sw		Grayish-green silty gravelly SAND - moist, angular gravel to 0.5", some clay		663		1105	03344602
					sm		Brown silty SAND - moist, fine sand, some medium sand, some sub-angular gravel to 1", trace clay					
			GW-1								1120	03344610
	10				sw		Dark brown silty gravelly SAND - wet, fine to medium sand, some fine sub-rounded gravel					
			C GW-2						7.8		1140 1150	03344603 03344611
	15				gw		Grayish-brown GRAVEL - wet, sub-rounded gravel to 1.5", fine to coarse sand, some silt					
			D						1.5		1230	03344604
	20						Same as above - wet, subrounded to subangular gravel to 2", fine to medium sand, some silt					
			E		sw-gw		Grayish-brown to reddish-brown sandy GRAVEL to gravelly SAND - wet, 50% sand, 30% gravel, 20% silt		1.1		1400	03344605
			GW-3		gw		Grayish-brown sandy GRAVEL - wet, dense, 50% subrounded gravel, 35% fine to medium sand, 15% silt				1450	03344612
	25		F		sw-gw		Grayish-brown sandy GRAVEL to gravelly SAND - wet, fine to coarse sand, subrounded gravel, 20% silt, oxidized		5.7		1530	03344606
	30		GW-4								1610	03344613
							Boring Terminated at 32 feet bgs on 8-18-03 Soils qualitatively very dense based on Geoprobe penetration difficulty					
	35											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-501

Sheet 1 of 1

Date(s) Drilled	8/19/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	32.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown SILT - dry, soft to slightly stiff, some fine sand					
			501						0.1		955	03344607
			A						0.3		1000	03344608
	5		C		gm		Reddish-brown to grayish brown silty GRAVEL - moist, stiff, greenish-gray, oxidized at 5-5.5', fine sand, trace clay		36		1015	03344615
			B(FD)						46		1025	03344609/03344614
			GW-1								1035	03344622
	10				gw		Gray-brown sandy Gravel - wet, 50% subrounded gravel, 40% fine to coarse sand, 10% silt, trace clay, dark brown at 12'					
			F						67		1114	03344618
			D GW-2 (FD)						5.4		1116 1130	03344616 03344623/03344624
	15											
	20		E		sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, dense, 45% sand, 40% gravel, 5% silt, increasing sand at 22'.		0.3		1220	03344617
			G		sp		Gray-brown SAND - wet, mostly medium sand		1.8		1225	03344619
			GW-3								1250	03344625
	25				gw		Gray-brown sandy GRAVEL - wet, 45% subrounded gravel, 40% fine to coarse sand, 15% silt					
			H						0		1615	03344620
	30		I GW-4						0.5		1620 1655	03344621 03344626
							Boring Terminated at 32 feet bgs on 8-19-03 Soils qualitatively very dense based on Geoprobe penetration difficulty					
	35											

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring GP-502** Sheet 1 of 1

Date(s) Drilled	8/20/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	32.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown SILT - dry, soft, some fine sand (approx. 10%), mottled reddish-brown, oxidized					
			502						0.1		905	03344627
			A				Light olive-brown SILT - moist, slightly stiff, some fine sand		1.2		900	03344635
	5											
			B		gw		Gray-brown sandy GRAVEL - moist, 50% subrounded gravel, 35% fine to coarse sand, 5% silt, greenish-gray staining at 6.5-7'		210 1826		910	03344636
			C						41		912	03344637
	10		GW-1		gm		Gray-brown silty GRAVEL - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand, 15% silt, rock fragments at 13'				945	03344644
			I						65		1230	03344643
			J						142		1235	03344649
	15		D				Same as above - dark gray-brown, wet, subrounded to subangular gravel to 1.5"		208		0945	03344638
	20				gw		Gray-brown sandy GRAVEL - wet, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt					
			E								1006	03344639
			F		sw		Gray-brown gravelly SAND - 60% fine to medium sand, 30% subrounded to subangular gravel, 10% silt		1.4		1033	03344640
	25		GW-2								1100	03344645
					gw-gm		Gray-brown sandy GRAVEL to silty GRAVEL - wet, 60% subrounded to subangular gravel, 25% fine to coarse sand, 15% silt, oxidized yellow-brown, purple sand and gravel 26.5 to 27.5'					
			G		sp		Gray-brown SAND - wet, loose, mostly fine to medium sand, occasional subrounded gravel to 0.75", some silt		152		1145	03344641
	30		H								1150	03344642
			GW-3						249		1200	03344646
							Boring Terminated at 32 feet bgs on 8-20-03 Soils qualitatively very dense based on Geoprobe penetration difficulty					
	35											

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URS

Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-503

Date(s) Drilled	8/21/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	32.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light to medium olive-brown SILT - dry grading to wet, soft, non-plastic					
			503						0.8		850	03344650
					sm		Light olive-brown silty SAND - wet, soft, mostly fine sand, 15% silt					
			A		ml		Olive-brown SILT - moist, slightly stiff, mottled reddish-brown and gray, oxidized, trace fine sand		0.0		852	03344651
	5		MJ2459								0920	03354696 (Metals)
			B		sm		Light olive-brown silty gravelly SAND - dry to slightly damp, soft, mostly fine sand, 35% subangular gravel, 15% silt		8.6		904	03344652
			C		gm		Dark reddish-brown silty sandy GRAVEL - dry to slightly damp, 60% subangular gravel, rock fragments, 20% fine sand, 20% silt		7.1		906	03344653
	10				gw		Gray-brown sandy GRAVEL - wet, 60% subangular to subrounded gravel to 2", rock fragments, 35% fine sand, 5% silt					
			D								938	03344654
			MJ2460								0945	03354697 (Metals)
			E						9.9		940	03344655
	15		GW-1								958	03344661
							Same as above - saturated, 60% rounded to subrounded gravel, 30% fine to coarse sand, 10% silt, oxidized, mottled yellow-brown					
			F						17.2		1022	03344656
	20		G				Same as above - wet, moist to very moist 22-24', 60% subangular to subrounded gravel, 35% fine to coarse sand, 5% silt, oxidized, mottled yellow-brown		7.9		1024	03344657
			H						138		1044	03344658
			I						5.7		1046	03344659
	25		GW-2								1115	03344662
					sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, 45% subrounded to subangular gravel, 45% fine to medium sand, 5% silt					
			J						131		1155	03344660
	30		K						57.8		1157	03344661
			GW-3								1345	03344663
							Boring Terminated at 32 feet bgs on 8-21-03 Soils qualitatively very dense based on Geoprobe penetration difficulty					
	35											

URS

Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring GP-504** Sheet 1 of 1

Date(s) Drilled	8/22/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	32.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml-sm		Light to medium olive-brown sandy SILT - dry to slightly damp, soft, low plasticity, 15% fine sand					
			504						0		1531	03344647
			A		ml		Olive-brown SILT - moist, stiff, mottled gray to reddish-brown, oxidized, medium plasticity, increasing gravel and fine sand at 7.5', blue-green staining		0		1533	03344648
	5		B						0		1557	03344649
			C						1.0		1600	03344650
	10				gw		Gray-brown sandy GRAVEL - wet, 60% subangular to subrounded gravel, 30% fine to medium sand, 10% silt					
			D						0.7		0950	03344667
			E						0		0952	03344668
	15		GW-1								1010	03344675
			F				Same as above - wet, some lenses moist, 60% subangular to subrounded gravel to 1", 30% fine sand, 10% silt				1038	03344669
	20		G				Same as above - wet, 60% subangular to subrounded gravel to 1", 30% fine sand, 10% silt		0.2		1040	03344670
			H		sm-sp		Reddish-brown silty SAND to SAND - loose, moist, weathered sand grains, mottled gray				1107	03344671
			I		gw		Gray-brown sandy GRAVEL - wet, 60% subangular to subrounded gravel to 1", 30% fine sand, 10% silt				1105	03344672
	25		GW-2								1120	03344676
			J		sp		Dark gray SAND - loose, wet, 80% medium sand, 10% subrounded to subangular gravel, 10% silt				1327	03344673
			K						23		1330	03344674
	30		MJ2461								1335	03354698 (Metals)
			GW-3								1400	03344677
							Boring Terminated at 32 feet bgs on 8-22-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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URS

Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-505

Sheet 1 of 1

Date(s) Drilled	8/25/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	32.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				FILL		FILL, GRAVEL					
			505 A (FD)		ml-sm		Light olive-brown SILT - dry grading to moist, low plasticity, mottled gray-brown		0.0		1027	03354600
	5				ml		Same as above - grading to wet at 7.5', increasing fine sand at 7' (SM), gravels at 8'		0.0		1030	03354601/03354602
			B								1037	03354603
			C		gw-gm		Gray-brown silty GRAVEL to sandy GRAVEL - moist to slightly wet, 60% subrounded gravel, 30% fine to coarse sand, 10% silt		0.0		1040	03354604
	10		D		gw		Gray-brown sandy GRAVEL - wet, 60% subangular to subrounded gravel, 30% fine sand, 10% silt				1055	03354605
			E								1057	03354606
	15		GW-1								1150	03354613
			F				Same as above - saturated, 50% subrounded to subangular gravel, 45% fine to coarse sand, 5% silt				1308	03354607
			G						0.0		1310	03354608
	20		H		gw-gm		Gray-brown silty sandy GRAVEL - wet, 40% subrounded to subangular gravel, 40% fine to coarse sand, 20% silt				1348	03354609
			I						0.1		1350	03354610
	25		J		gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt		0.0		1442	03354611
			K						0.0		1445	03354612
	30		GW-2								1515	03354614
							Boring Terminated at 32 feet bgs on 8-25-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

URS

Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-506

Sheet 1 of 1

Date(s) Drilled	9/3/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				Fill		FILL, Gravel					
	5		A		ml-cl		Light olive-gray clayey SILT - damp, medium soft, medium plasticity, trace fine sand, mottled gray-brown, oxidized				920	03354616
			506		ml		Same as above - increasing sand and gravel at 9'		0		0930	03354615
	10		B		gw-sw		Red-brown sandy GRAVEL - slightly wet, subrounded to subangular gravel median size 1", fine to medium sand, some silt/clay		3.3		0942	03354617
			C		sp		Red-brown SAND - slightly wet, medium to coarse sand, some fine gravel, trace silt		1		0944	03354618
			GW-1								1010	03354627
	15		D		gw-gm		Gray-brown silty GRAVEL to sandy GRAVEL - 60% subrounded to subangular gravel to 2", 20% fine to medium sand, 20% silt		2.1		1044	03354619
			E						1.7		1046	03354620
	20		F		gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt		2.2		1350	03364602
			G						1.1		1353	03364603
			GW-2								1410	03364608
	25											
			GW-3								1500	03364609
	30						Boring Terminated at 30 feet bgs on 9-3-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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URS

Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-507

Date(s) Drilled	9/2/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown SILT - damp to moist, soft, some fine sand, mottled gray and red-brown					
			507						0		920	03364610
	5				ml		Light olive-brown SILT - moist, stiff, 20% subrounded to subangular gravel, 10% fine sand, mottled as above					
			A						0		937	03364611
			B		gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand		0		945	03364612
	10		C								947	03364613
			GW-1								1010	03364622
					gw		Gray-brown sandy GRAVEL - wet, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt					
	15		D						0.2		1030	03364614
			E						1.2		1037	03364615
					gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt					
			F						0.3		1050	03364616
	20				gw-gm		Gray-brown silty GRAVEL to sandy GRAVEL - wet, 40% subrounded to subangular gravel, 40% fine to medium sand, 20% silt, trace clay					
			G						0		1052	03364617
			GW-2								1115	03364623
					sm-gm		Gray-brown silty SAND to silty GRAVEL - 40% fine to coarse sand, 40% subrounded to subangular gravel, 20% silt					
	25		H								1205	03364618
			I						1.2		1207	03364619
			GW-3								1330	03364624
	30						Boring Terminated at 30 feet bgs on 9-4-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

URS

Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-508

Sheet 1 of 1

Date(s) Drilled	9/5/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				Fill		FILL - Sand and Gravel					
					ml		Light olive-brown SILT - dry, moist, non-plastic, grading to ML-CL at 3 -4', increasing gravel to 0.5" at 3.5-4'					
			508		sm		Light olive brown gravelly SAND - moist, 70% fine to coarse sand, 20% subrounded to subangular gravel, 10% silt and clay, mottled grayish-white to brown 5.75 to 6', grading to olive brown gravelly SAND (SW)		0		1505	03364620
	5		A		gm		Gray-brown silty sandy GRAVEL - moist, 20% clayey silt		0.1		1515	03364621
	10		B		gw		Gray-brown sandy GRAVEL - moist, loose, 40% fine to medium sand, rock fragments, trace silt		2.3		1530	03364625
			C		gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - wet, 45% subrounded to subangular gravel, 45% fine to coarse sand, 10% silt		0		841	03364626
	15		D						0		843	03364627
			GW-1								905	03364635
			E (FD)				Same as above - wet, 45% subrounded to subangular gravel, 45% fine to coarse sand, 10% silt				930	03364628/03364638
	20		F						0		0933	03364629
			GW-2								950	03364636
	25				gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt					
			G						0		1021	03364630
			H						0		1023	03364631
			GW-3								1045	03364637
	30						Boring Terminated at 30 feet bgs on 9-5-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-509

Sheet 1 of 1

Date(s) Drilled	9/8/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				Fill		FILL - Sand and Gravel					
					cl-ml		Gray silty CLAY to clayey SILT - medium soft, damp, low to medium plasticity					
			509		ml		Light olive brown SILT - slightly moist, stiff, nonplastic, some fine sand				1250	03364639
	5		A				Gray-brown SILT with gravel - increasing gravel to 2"				1256	03364640
			B		gw		Gray-brown sandy GRAVEL - moist, loose, 60% subrounded gravel, 30% fine to coarse sand, 10% silt, bluish-gray staining at 9', grading to GW at 9.5', rock fragments		0.0		1258	03364641
			C								1321	03364642
	10		D						0.0		1323	03364643
			E				Same as above - wet, 60% subrounded to subangular gravel, 30-35% fine to coarse sand, 5-10% silt				1342	03364644
	15		F						0.0		1344	03364645
			GW-1								1355	03364632
			G				Same as above - wet, 60% subrounded to subangular gravel, 30-35% fine to coarse sand, 5-10% silt				1435	03364646
	20		GW-2								1450	03364633
					sw		Gray-brown to reddish brown gravelly SAND - moist grading to wet, mostly fine sand, 20% gravel					
	25		H		gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt, dark gray 27-28'				0852	03374165
			I						0.0		0854	03374166
			GW-3								0910	03374167
	30						Boring Terminated at 30 feet bgs on 9-8-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-510

Sheet 1 of 1

Date(s) Drilled	9/8/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				fill		FILL - Sand and Gravel					
					ml		Gray SILT - damp, low to nonplastic, some clay, mottled reddish-brown 1-2', gray-brown 2-4'					
			510		gm-gc		Light olive brown silty GRAVEL to clayey GRAVEL - moist, clayey silt matrix, 50% subrounded to subangular gravel, 30% fine sand, gray silt 6-8', mottled gray-brown		0		1000	03374150
	5		A								1010	03374151
			B		ml		Gray-brown SILT with gravel - increasing gravel to 2"		0.2		1012	03374152
			C		gw		Gray-brown sandy GRAVEL - moist grading to slightly wet, loose, 60% subrounded gravel, 35% fine to coarse sand, 5% silt, trace clay				1025	03374153
	10		D						0		1027	03374154
			GW-1						0		1035	03374162
	15		E				Same as above - gray-brown to medium brown, saturated, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt				1055	03374155
			F		gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - wet, 45% subrounded to subangular gravel, 45% fine to coarse sand, 10% silt		0		1057	03374156
	20		G								1110	03374157
			H						0		1112	03374158
	25		I (FD)		gw		Gray-brown sandy GRAVEL - wet, 50% subrounded to subangular gravel, 45% fine to coarse sand, 5% silt		0		1320	03374159/03377460
			J								1322	03374184
			GW-2								1335	03374163
	30						Boring Terminated at 30 feet bgs on 9-8-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-511

Sheet 1 of 1

Date(s) Drilled	9/8/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				fill		FILL - Sand and Gravel					
					ml		Light olive-brown clayey SILT - moist, medium soft, mottled reddish-brown, trace fine sand, roots					
			511									
			A				Light olive brown to reddish-brown SILT - moist, stiff, increasing gravel with depth		0		1457	03374170
	5										1505	03374171
			B									
					gm		Same as above - grading to silty GRAVEL at 7-8'				1507	03374172
					sm-gm		Olive-brown to gray silty SAND and GRAVEL - moist, 50% fine to medium sand, 40% subrounded to subangular gravel, 10% silt, some clay					
			C						0		1525	03374173
	10											
			D								1527	03374174
			GW-1 MS/MSD								1540	03374180
					gw		Gray-brown to medium brown sandy GRAVEL - saturated, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt					
	15											
			E						0		1600	03374175
			F		gw-sw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel to 2", 35% fine to coarse sand, 5-10% silt				0832	03374176
	20											
			G		sp		SAND - reddish-brown, fine sand at 21-22'				0834	03374177
					gw-sw		Gray-brown SAND and GRAVEL - wet, 45% subrounded to subangular gravel, 45% fine to coarse sand, 10% silt					
			GW-2 (FD)								0900	03374181/03374182
	25		H (FD)								0942	03374178/33774185
			I (FD)						0		0944	03374179/03374186
			GW-3								1010	03374183
	30						Boring Terminated at 30 feet bgs on 9-8-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring GP-512** Sheet 1 of 1

Date(s) Drilled	9/9/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Grass surface Olive-gray clayey SILT - damp, medium stiff, mottled reddish-brown, trace fine sand, roots					
	5		512 (FD)		ml		Light olive brown SILT - moist, slightly stiff, some clay, some fine sand, grading to a GM at 6.5'		0		1242	03374187/03374200
			A		gm		Gray-brown to bluish-gray silty GRAVEL - moist, 35% subrounded gravel, 65% fine sand, silt and clay				1252	03374188
			B		sw		Olive-brown to gray gravelly SAND - moist, 50% fine to medium sand, 40% subrounded to subangular gravel, 10% silt, some clay				1254	03374189
			C						0		1307	03374190
	10		D								1309	03374191
			GW-1								1320	03374197
	15				gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand					
			E MS/MSD		sp		Gray-brown fine to medium SAND - sand lense				1342	03374192
			F		gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand		0		1344	03374193
			G				Same as above - wet, 60% subrounded to subangular gravel to 2", 35% fine to coarse sand, 5-10% silt', pulverized cobbles				1354	03374194
	20		H								1356	03374195
			GW-2								1405	03374198
	25				sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, 50% subrounded to subangular gravel, 45% mostly medium sand, 5% silt, pulverized cobble fragments					
			I						0		1427	03374196
			GW-3								1450	03374199
	30						Boring Terminated at 30 feet bgs on 9-9-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-513

Sheet 1 of 1

Date(s) Drilled	9/10/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Grass surface over 6" of Dark brown sandy SILT (ML-SM)					
							Olive-gray SILT - damp, slightly stiff, mottled reddish-brown, trace fine sand, roots					
			513						0.0		1034	03374201
	5						Light olive brown to medium gray SILT - damp, stiff, some clay, low to medium plasticity, increasing gravel at 7.5-8'					
			A (FD)						0.0		1043	03374202/03374203
			B		gw		Gray-brown to medium brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30-35% fine to coarse sand, 5-10% silt		0.0		1045	03374204
	10		C						0.0		1057	03374205
			D						0.0		1059	03374206
			GW-1								1110	03374212
	15		E				Same as above - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt				1132	03374207
			F								1134	03374208
	20		G						0.0		1152	03374209
			H						0.0		1154	03374210
			GW-2								1300	03374213
	25		I				Same as above - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt		0.0		1322	03374211
			J						0.0		1324	03374230
			GW-3								1335	03374214
	30						Boring Terminated at 30 feet bgs on 9-10-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring GP-514** Sheet 1 of 1

Date(s) Drilled	9/10/03 to 9/11/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	31.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown to light gray SILT (ML) - dry, soft, oxidized, mottled reddish-brown, some fine sand, roots					
			514						0		1407	03374215
	5						Light olive brown to medium gray SILT - damp grading to moist, stiff, some clay, low to medium plasticity					
			A								1437	03374216
			B								1439	03374217
			C				Light olive-brown to light gray SILT with gravel - moist, stiff, increasing gravel and sand		0		1447	03374218
	10				gw		Gray-brown to medium brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt					
			D								1449	03374219
	15											
			GW-1 (FD)								1535	03374226/03374227
	20											
			E						0		832	03374220
			F								0834	03374221
	25		GW-2 MS/MSD								0845	03374228
					sm-gm		Gray-brown to reddish-brown silty SAND and GRAVEL - slightly wet, 40% subrounded to subangular gravel, 40% fine to coarse sand, 15-20% silt					
			G						0		0927	03374222
			H								0950	03374223
	30		GW-3								0929	03374229
							Boring Terminated at 31 feet bgs on 9-10-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-515

Date(s) Drilled	9/11/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Grass surface over 6" of Dark brown sandy SILT (ML-SM)					
							Light olive brown to light gray SILT - dry grading to moist, grading stiff at 4', nonplastic grading to medium plasticity at 4', some fine sand,				
			515								1027	03374231
	5		A								1042	03374232
							Medium gray SILT with sand and gravel - moist, medium soft, increasing gravel and sand at 6.5'					
					sm-gm		Reddish-brown silty SAND and GRAVEL - moist, mottled gray, subrounded to subangular gravel, fine to medium sand					
			B MS/MSD		gw						1044	03374233
			C				Gray-brown to reddish-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt				1052	03374234
	10											
			D		sp		Blue-gray SAND - wet, mostly medium sand, some clay				1054	03374235
			GW-1								1110	03374243
					gw		Gray-brown to reddish-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand, some yellow-brown oxidation, 10% silt					
	15		E						0.0		1132	03374236
			F						0.0		1134	03374237
			G (FD)						0.0		1147	03374238/03374239
	20											
			H						0.0		1149	03374240
			GW-2								1155	03374244
					sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, 50% fine to medium sand, 40% gravel, 10% silt, purple, reddish-brown, medium gray weathered sand					
	25		I						0.0		1327	03374241
			J						0.0		1329	03374242
			GW-3								1350	03374245
	30						Boring Terminated at 30 feet bgs on 9-11-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring GP-516** Sheet 1 of 1

Date(s) Drilled	9/11/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Grass surface Light olive brown to light gray SILT - damp, medium soft, nonplastic, mottled gray-brown					
			516						0.0		1422	03374246
	5						Same as above - light olive-brown, slightly moist, fine sand, mottled gray-brown, medium gray 7.5-8', increasing gravel and sand 7.75-8'					
			A								1433	03374247
			B						0.0		1435	03374248
			C		sm		increasing gravel and sand 7.75-8' Light olive-brown silty SAND - moist, 50% fine to medium sand, 40% silt, 10% subrounded to subangular gravel		0.0		1442	03374249
	10				gm-sm		Reddish-brown silty SAND and GRAVEL - moist, medium soft					
			D (FD)		gw		Gray-brown sandy GRAVEL - wet, 60% subrounded gravel, 30% fine to coarse sand, 10% silt		0.0		1444	03374250/03374251
			GW-1 (FD)								1455	03374258/03374259
	15		E				Same as above				1512	03374252
			F						0.0		1514	03374253
			G				Same as above				1527	03374254
	20		H									
			I						0.0		1529	03374255
			GW-2								1531	03374256
											1540	03374260
	25		J									
			K						0.0		1617	03374257
											1619	03374262
			GW-3								1630	03374261
	30						Boring Terminated at 30 feet bgs on 9-11-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-517

Date(s) Drilled	9/12/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				fill		Gravel Surface					
					ml		Light olive brown SILT - damp, stiff, some fine sand, nonplastic, mottled gray-brown					
			517						0.0		0852	03374263
	5		A								0902	03374264
			B		gm		Light olive-brown silty GRAVEL - slightly moist, fine sand, mottled gray-brown, medium gray 7.5-8', increasing gravel and sand 7.75-8'		0.0		0904	03374265
			C		sm		Gray-brown silty SAND - wet, 75% fine to medium sand, 25% silt		0.0		0912	03374266
	10		D		gm		Gray-brown silty sandy GRAVEL - wet, 50% subrounded to subangular gravel, 30% fine to coarse sand, 20% silt		0.0		0914	03374267
					gw		Gray-brown sandy GRAVEL - wet, 45% subrounded to subangular gravel, 40% fine to coarse sand, 15% silt					
	15		E (FD)								0932	03374268/03374269
			F		sw		Reddish-brown gravelly SAND - 60% fine to medium sand, 30% subrounded to subangular gravel, 10% silt				0934	03374270
			GW-1 MS/MSD								0950	03374275
	20		G		gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt				1027	03374271
			H								1029	03374272
			I		sm-gm		Gray-brown silty SAND and GRAVEL - wet, 50% subrounded to subangular gravel, 30% fine to coarse sand, 20% silt, increasing sand at 27-28'				1052	03374273
	25		J								1054	03374274
			GW-2								1125	03374276
	30						Boring Terminated at 30 feet bgs on 9-12-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring GP-518

Sheet 1 of 1

Date(s) Drilled	9/12/03 and 9/15/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Geoprobe	Drilling Contractor	ESAT	Total Depth Drilled (FT BGS)	30.0
Drill Rig Type	Geoprobe	Sampler Type	Macro core	Surface Elevation	not measured
Groundwater Level (feet bgs)	approx. 8 feet bgs ATD	Drill Bit Size/Type	2" drive point	Top of PVC Elevation	NA
Diameter of Hole (inches)	2 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	NA
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Drove continous core samples except in 2' groundwater sample zones				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Reddish-brown SILT - damp, medium soft, some fine sand, increasing gravel and clay at 4'					
			518				Same as above - subrounded to subangular gravel		0.0		1307	03374278
	5		A (FD)		gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - slightly wet, loose, 45% subrounded to subangular gravel, 45% fine to coarse sand, 10% silt		0.0		1317	03374279/03374295
			B						0.0		1319	03374280
			C		gw		Gray-brown sandy GRAVEL - wet, loose, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt				1327	03374281
	10		D								1329	03374282
			GW-1								1340	03374289
	15		E				Same as above - wet, loose, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt				1357	03374283
			F						0.0		1359	03374284
	20		G MS/MSD								1417	03374285
			H								1419	03374286
	25		I				Same as above - wet, loose, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt				1107	03384057
			J								1109	03384058
			GW-2								1135	03384059
	30						Boring Terminated at 30 feet bgs on 9-12-03 Soils qualitatively very dense based on Geoprobe penetration difficulty.					
	35											

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Project: Hamilton-Labree/EPA Project Location: Chehalis, WA Project Number: RAC WA 100	Log of Boring AB-650 Sheet 1 of 2

Date(s) Drilled	10/16 to 10/17/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	NA	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	49.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	
Groundwater Level (feet bgs)	7 10/16/03	Drill Bit Size/Type	4.25-inch ID auger	Top of PVC Elevation	
Diameter of Hole (inches)	8 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown SILT - moist, soft, organic material, mottled red-gray-brown, some fine sand					
		X	650	WR/1					0.0	0.0	0950	03424166
	5							▼				
	10	X	A	4,5,8	gw		Red-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt		0.0	0.0	1007	03424167
	15											
	20	X	B	23,15,8	sw-gw		Gray-brown SAND and GRAVEL (GW-SW) - wet, medium dense, 50% subrounded to subangular gravel, 45% fine to coarse sand, 5% silt		0.0	0.0	1036	03424168
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring AB-650

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25				sw-gw		Same as above - gray-brown SAND and GRAVEL					
	30		C	9,12,17			Same as above - dense, gray-brown SAND and GRAVEL		0.0	0.0	1114	03424169/03424170
			D	7,7,14	sp		Gray-brown SAND (SP) - medium dense, mostly medium sand				1130	03424171
			E	7,12,10 7,14,19	gw		Gray-brown sandy GRAVEL (GW) - wet, dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt				1147 1204	03424172
	35		F GW-1								1320	03424173 03424174
			G	12,17,23			Same as above - wet, dense, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt				1435	03424175
			H	7,13,13			Same as above - pulverized cobbles, medium dense				1525	03424176
				8,10,12			Same as above - 65% gravel, 35% fine to coarse sand				1545	
	40		I GW-2								1600	03424177 03424178
			J	23,13,16			Same as above - wet, dense, 60% subrounded to subangular gravel, 35% fine to coarse sand				1050	03424179
				7,17,27							1100	
	45		K GW-3								1145	03424180 03424181
			L	7,15,7	gm		Yellowish-brown silty GRAVEL - wet, medium dense, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt				1315	03424182
			M	1,3,4	cl-ml		Bluish-green clayey SILT - wet, stiff, trace fine sand, low plasticity				1320	03424183
			N									
	50						Boring Terminated at 49.5 feet bgs on 10-17-03				1330	03424184
	55											

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring AB-651** Sheet 1 of 2

Date(s) Drilled	10/14/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	NA	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	48.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	
Groundwater Level (feet bgs)	7 10/14/03	Drill Bit Size/Type	4.25-inch ID auger	Top of PVC Elevation	
Diameter of Hole (inches)	8 — Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown SILT (ML) - moist, soft, organic material, mottled gray-brown					
		X	651	2,1,2					0.0	0.0	1135	03424150
	5							▼				
	10	X	A	5,12,19	gw		Gray-brown sandy GRAVEL - wet, dense, 40% subrounded to subangular gravel, 40% fine to coarse sand, 10-20% silt		0.0	0.0	1150	03424151
	15											
	20	X	B	5,17,50/6"			Same as above - very dense		0.0	0.0	1210	03424152
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring AB-651

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25				gw		Same as above - sandy GRAVEL					
	30		C	14,19,22			Same as above - very dense		0.0	0.0	1215	03424153
			D	16,40,44			Same as above - very dense				1223	03424154
				20,32,47							1358	03424155
	35		E		sw-gw		Gray-brown sandy GRAVEL - wet, very dense, 60% subrounded to subangular gravel, 45% fine to coarse sand, 5% silt, oxidized yellow-brown					
			GW-1								1445	03424156
			F	14,22,24	sp		Gray-brown SAND (SP) - wet, very dense, mostly fine to medium sand				1535	03424157
				8,19,26			Same as above - 10% subrounded to subangular gravel				1550	03424158
			G	10,24,36			Same as above - very dense, 10% silt				1555	03424159
	40		H									
				14,26,37	sw-gw		Gray-brown sandy GRAVEL - wet, very dense, 40% subrounded to subangular gravel, 40% fine to coarse sand, 20% silt, trace clay				1601	03424160
			I	12,12,14	sm		Gray-brown silty SAND (SM) - wet, dense, mostly fine to medium sand, 20% gravel				0940	03424161
			J	9,6,7			Same as above - medium dense, increasing gravel				0954	03424162
	45		K	6,18,45			Same as above - very dense				1010	03424163
			L		sp		Gray-brown SAND - mostly medium sand					
			GW-2		sm-gm		Grades to silty GRAVEL to silty SAND at 46.5'				1220	03424165
			M	2,3,2	ml		Bluish-green clayey SILT (ML) - wet, medium stiff, trace fine to coarse sand, low plasticity				1215	03424164
							Boring Terminated at 48.5 feet bgs on 10-14-03					
	50											
	55											

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Project: Hamilton-Labree/EPA Project Location: Chehalis, WA Project Number: RAC WA 100	Log of Boring AB-652 Sheet 1 of 2

Date(s) Drilled	11/19/03	Logged By	E. Lillywhite	Checked By	M. Meyer
Drilling Method	NA	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	48.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	
Groundwater Level (feet bgs)	7 11/19/03	Drill Bit Size/Type	4.25-inch ID auger	Top of PVC Elevation	
Diameter of Hole (inches)	8 / Diameter of Well (inches) NA	Type of Well Casing	NA	Screen Perforation	
Type of Sand Pack	NA	Type and Depth of Seal(s)	NA		
Comments	140-lb drive hammer; Groundwater samples collected with hydropunch				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown to light gray SILT - dry, soft, oxidized, mottled reddish-brown, some fine sand, roots					
	5						Same as above - light olive brown, damp grading to moist, stiff, some clay, low to medium plasticity	▼				
					ml		Same as above - moist, stiff, increasing gravel and sand					
	10				gw		Gray-brown to medium brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt					
	15	Physical	652A	4,6,20	ml		Gray SILT - wet, very stiff, non-plastic, oxidized, trace fine to coarse sand as small lenses		0.0	0.0	0923	03474230 03474230
			B C	5,19,15	sw		Gray-brown gravelly SAND - wet, dense, 40% fine to coarse sand, 40% subrounded to subangular gravel, 20% silt		0.0	0.0	0932	03474231 03474232/03474233
	20				ml		Orange-brown to light brown SILT - dry, non-plastic, loose					
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring AB-652

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25		D	14,19,23	sp		Gray-brown gravelly SAND - wet, dense, 50% subrounded to subangular gravel, 35% fine to coarse sand, 15% silt			0.0	0944	03474234
			E		gw-gm		Gray-brown silty sandy GRAVEL - wet, partially cemented, 50% subrounded to subangular gravel (1/4-1/2"), 35% fine to medium sand, 15% silt					03474235
	30		F	12,30,27			Same as above - very dense, 25% fine to coarse sand, 25% silt			0.0	0957	03474236
			G	15,32,55			Same as above - oxidized at 33', 1.5" gravel, medium sand, bluish-gray			0.0	1020	03474237
			H	16,32,36	sp		Gray-brown gravelly SAND - wet, very dense, 80% fine to coarse sand, 15% subrounded to subangular gravel (1/4-1/2"), 5% silt, zones of oxidation			0.0	1035	03474238
			I									03474239
	35		GW-1								1110	03474240
			J	8,26,31						0.0	1122	03474241
			K	6,30,45			Same as above - 35-40% gravels to 1", partial cementation, becoming coarser			0.0	1130	03474242
			Physical									03474242
			L	6,36,40			Same as above - gravel 0.25-0.5"			0.0	1143	03474243
	40		GW-2									03474244
			M	16,42,26						0.0	1223	03474245
			N	12,28,30						0.0	1236	
			O									03474246
				7,50, 50/0.5"						0.0	1243	03474247
	45		GW-3									
			P	5,7,8	gw ml		Gray-brown sandy GRAVEL - wet, very dense, 80% subangular gravel (1/2-1"), 15% fine to medium sand, 5% silt, partially cemented			0.0	1353	03474248/03474249
			Q				Bluish-green SILT - damp, stiff, non-plastic, trace very fine sand					03474250
			Physical	5,15,18						0.0	1359	03474251
			R									03474251
							Boring terminated at 48.5 feet bgs on 11-19-03					03474252
	50											
	55											

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09_URS Well Logs 2003

Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring MW-600** Sheet 1 of 2

Date(s) Drilled	11/3 to 11/5/2003	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	49.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	207.60
Groundwater Level (feet bgs)	5.04 on 11/21/03	Drill Bit Size/Type	6.25-inch ID auger	Top of PVC Elevation	209.20
Diameter of Hole (inches)	10 — Diameter of Well (inches) 4	Type of Well Casing	Sch 80 CPVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (7-35'); Filter sand (5-36'); Bentonite chips (2-5', 36-49'); Cement surface compl. (0-2')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light to medium olive-brown SILT - dry grading to wet, soft, non-plastic					Depth of silt contact based on log of boring GP-503
205												
	5											
200					gm		Dark reddish-brown silty sandy GRAVEL - dry to slightly damp, 60% subangular gravel, rock fragments, 20% fine sand, 20% silt					
	10											
195												
	15	X	600	8,11,16	gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - wet, dense, 50% subrounded to subangular gravel, 40-45% mostly fine sand		0.0		1400 1405	03444036
190												
	20											
185												
	25	X		10,10,10	gw		Gray-brown sandy GRAVEL - wet, medium dense, 50% subrounded to subangular gravel, 40% fine to		0.0		1427	

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-600

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25		A				coarse sand, weathered granite at 25'				1430	03444037
180												
			B 600B	5,8,12	sw		Gray-brown gravelly SAND - wet, medium dense, mostly fine to medium sand, 20% subrounded to subangular gravel, some silt		0.0		1508 1510 1515	 03444038 03444052 (PTS)
	30		C	5,7,10	sp		Gray-brown SAND - wet, mostly fine to medium sand, increasing gravel at 31.5'		0.0		1520 1525	 03444039
			D	7,13,14			Same as above - dense, increasing subrounded to subangular gravel, rock fragments and weathered granite at 32.5'		0.0	0.0	1535 1537	 03444040
175			E	7,11,12	sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, medium dense, 50% fine to medium sand, 40% subrounded to angular gravel, 10% silt, oxidized yellow-brown, reddish-gray volcanics at 34'				1550 1555	 03444041
	35		GW-1						0.0	0.0	0915	03444042
			F	11,16,20	gw		Gray-brown sandy GRAVEL - wet, dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt				0955 1000	 03444043
170			G	8,11,13							1010 1020	 03444044
	40		GW-2								1045	03444045
			H	9,13,14	gm		Same as above grading to silty GRAVEL - moist, dense, some reddish-brown silt			0.0	1100 1112	 03444047
165			I	7,12,15	gw		Gray-brown sandy GRAVEL - wet, dense, 60% subrounded to subangular gravel, 40% fine sand, weathered granite				1115 1120	 03444048
	45		GW-3								1130	03444049/03444046
			J	2,3,4	ml		Bluish-green SILT - very moist, stiff, low plasticity, trace fine to medium sand				0945 0950	 03444050
160			K	2,3,5							1005 1015	 03444051
	50						Boring terminated at 49.5 feet bgs on 11-5-03					
155												
	55											
50												

ENV_23A S:\URAPP\HAMILT~1\HAM-LAB.GPJ URSSEA3.GLB WC_CORP1.GDT 2/10/04

Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring MW-601** Sheet 1 of 2

Date(s) Drilled	11/10/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	47.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	207.30
Groundwater Level (feet bgs)	4.84 on 11/21/03	Drill Bit Size/Type	6.25-inch ID auger	Top of PVC Elevation	208.71
Diameter of Hole (inches)	10 Diameter of Well (inches) 4	Type of Well Casing	Sch 80 CPVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (7-40'); Filter sand (5-40'); Silica grout (2-5', 40-49'); Cement surface compl. (0-2')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Light olive-brown SILT - damp, soft, non-plastic, vegetation, roots					
205												
	5		601	1,2,3					0.0		0930 0940	03464000
200												
					gw		Gray-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 35% mostly fine sand, trace silt					8' Contact/description between silt and gravel based on lithology from GP-502, adjusted for elevation
	10											
195												
	15		A	8,15,15	gw		Gray-brown sandy GRAVEL - wet, dense, 60% subrounded to subangular gravel, 35% mostly fine sand, trace silt		0.0	4.7	1025 1030	03464001
190												
	20											
185												
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-601

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows per 6-inch Interval	SAMPLES USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25											
180		Physical	B	6,7,7	gw		Gray-brown sandy GRAVEL - wet, medium dense, 50% subrounded to subangular gravel, 35% fine to medium sand, 15% silt		0.0		1120 1122	03464002
	30		C	11,12,13	sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, dense, 50% fine to coarse sand, 50% subrounded to subangular gravel, slightly silty		0.0	5.7	1130 1135	03464003
175			D	6,7,12			Same as above - grading to sandy GRAVEL at 32.5'		0.0	4.5	1135 1140	03464004
			E	8,28,30	gw sp		Gray-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt. Gray-brown SAND - wet, very dense, mostly medium sand, trace subrounded gravel, increasing gravel at 34'			4.8	1146 1150	03464005
	35		GW-1								1305	03464006
170			F	8,14,17	sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, dense, 45% mostly fine sand, 45% subrounded to subangular gravel, mottled yellow to dark gray				1315 1325	03464007
			G	8,13,14	sp-sw gw		Gray-brown gravelly SAND - wet, dense, mostly medium sand, some fine subrounded gravel, Gray-brown sandy GRAVEL - wet, medium dense, mostly subrounded to subangular gravel, fine sand				1330 1335	03464008
	40		GW-2								1425	03464009
165			H	9,14,15	sp-sw		Gray-brown gravelly SAND - wet, dense, mostly medium sand, some fine subrounded gravel,				1445 1450	034640010
		Physical	I	20,13,7	gw		Gray-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt,				1455 1458 1500	034640011
	45		GW-3 J	9,7,8							1535	03464012
160		Physical	K L	1,2,3	ml		Bluish-green SILT - very moist, medium stiff, low to medium plasticity, trace fine to medium sand				1540 1542 1543 1545	034640013 034640014 034640015
							Boring terminated at 47.5 feet bgs on 11-11-03					
	50											
155												
	55											
150												

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring MW-602** Sheet 1 of 2

Date(s) Drilled	11/11 to 11/12/2003	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	49.0
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	206.80
Groundwater Level (feet bgs)	4.06 on 11/24/03	Drill Bit Size/Type	6.25-inch ID auger	Top of PVC Elevation	208.03
Diameter of Hole (inches)	10 Diameter of Well (inches) 4	Type of Well Casing	Sch 80 CPVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (7-40'); Filter sand (5-41'); Bentonite chips (2-5', 41-49'); Cement surface compl. (0-2')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				mi		Grass Surface					
205							Light olive-brown SILT - moist grading wet, soft, non-plastic, fine sand					
	5	Physical	602 Metals	4,5,6					0.0		1510 1512	03464018 03464018/03464041
200					gm		grades to silty GRAVEL at 6.5'					
	10											
195		A Physical		7,12,17	gw		Gray-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt		0.0		1540 1542 1550	 03464019 03464021
		GW-1										
	15	B Physical		6,8,10			Same as above - wet, medium dense, 60% subrounded to subangular gravel, 40% mostly fine sand with some medium to coarse		0.0	14.5	0755 0810 0815	03464020 03464022 03464022
190												
	20											
185												
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-602

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25											
180												
	30	Physical	C	8,18,15	gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - wet, medium dense, 50% subrounded to subangular gravel, 45% fine to coarse sand, 5% silt		0.0	32	0855 0900 0910	03464023 03464023
175			D	5,17,28	sp-sw		Gray-brown SAND - wet, mostly medium sand, occasional subrounded gravel, rock fragments		0.0	47	0920	03464024
			E	6,17,24	sw		Gray-brown gravelly SAND - wet, medium dense, 50% fine to coarse sand, 30% weathered granite fragments, 15% subrounded to subangular gravel, 5% silt		0.0	4.1	0930 0935	03464025
	35		GW-2								0955	03464026
170			F	3,5,8			Same as above - no weathered granite, sand is mostly medium to coarse, fine subrounded gravel, slightly silty		0.0	3.1	1020 1025	03464027
			G	7,12,13			Same as above - yellow-brown fine sand, compact, very silty		0.0	0.0	1030 1040	03464028
	40		GW-3								1120	03464029/03464039
165												
	45											
160		Physical	H I	7,6,7,8	ml		Bluish-green SILT - damp, stiff, low to medium plasticity, trace fine to medium sand				1617 1619 1620	03464030 03464031 03464031
							Boring terminated at 49 feet bgs on 11-12-03					
	50											
155												
	55											
150												

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Project: Hamilton-Labree/EPA Project Location: Chehalis, WA Project Number: RAC WA 100	Log of Boring MW-603 Sheet 1 of 2

Date(s) Drilled	11/13 to 11/17/2003	Logged By	E. Lillywhite	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	48.0
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	206.40
Groundwater Level (feet bgs)	3.82 on 11/24/03	Drill Bit Size/Type	6.25-inch ID auger	Top of PVC Elevation	207.79
Diameter of Hole (inches)	10 — Diameter of Well (inches) 4	Type of Well Casing	Sch 80 CPVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (7-37'); Filter sand (4-38'); Bentonite chips (2-5', 38-48'); Cement surface compl. (0-1')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				ml		Olive-gray SILT - dry, non-plastic, some fine sand					0-5' Lithologic description based on log of GP-500
205							Gray sandy SILT - wet, loose					
							Light olive-gray SILT - stiff, slightly moist, mottled, oxidized					
	5		603A Physical	41,33, 50/5.5"			Light gray SILT - damp, stiff, non-plastic, some subrounded to subangular gravel 0.25 to 0.5", trace oxidation		0.0	0.0	1510	03464037 03464037
200					gw-gm		Gray-brown silty sandy GRAVEL - moist, fine sand, subrounded to subangular gravel					
	10											
195												
	15		B	65,50/0.5"	gw		Gray-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 30% fine to medium sand, 10% silt		0.0	0.0	1548	03464038
190												
	20											
185												
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-603

Elevation, feet (NGVD)	Depth, feet	Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25											
			C	11,50/5.5"			Same as above - cobble in shoe, dense		0.0	0.0	1031	03464042
		Physical										03464042
180												
	30		D	18,48,50/6"	sp		Gray-brown SAND - wet, dense, 70% mostly fine to medium sand, 20% subrounded to subangular gravel, 10% silt		0.0	0.0	1137	03464043
175				20,20,30	gw		Gray-brown sandy GRAVEL - wet, medium dense, 85% subrounded to subangular gravel, 15% fine to coarse sand, trace silt, oxidized at 32.25'		0.0	0.0	1229	
			E									03464044
				8,8,8					0.0	0.0	1541	
			F									03464045
			GW-1									03464046
	35		G	2,2,11	gm		Gray-brown silty GRAVEL - wet, medium dense, 50% subrounded to subangular gravel, 25% fine sand, 25% silt, partial cementation		0.0	0.0	0849	03464047
170			H	5,25,20	gw		Gray-brown sandy GRAVEL - wet, medium dense to dense, 90% subrounded to subangular gravel, 10% fine to medium sand, grades to silty GRAVEL		0.0	0.0	1312	03464048
			I									03464049
		Physical		10,20,54	gm		Gray-brown silty GRAVEL - wet, 40% silt, 40% subrounded to subangular gravel, 20% fine to coarse sand		0.0	0.0	1334	03464100
			J									03464100
	40		GW-2								1505	03464101
165			K	10,22,31			Same as above - wet, loose to medium dense, 50% subrounded to subangular gravel, 40% silt, 10% fine to medium sand, grades siltier		0.0	0.0	1522	03464102
			L	15,35, 50/4.5"	sp		Gray-brown SAND - wet, medium dense, mostly fine to coarse sand		0.0	0.0	1550	03464103
			M		gm		Gray-brown silty GRAVEL - wet, medium dense, 35% subrounded to subangular gravel, 30% fine to coarse sand, 30% silt					03464104
			GW-3									03464105
	45		N	6,6,8	ml		Same as above - wet, medium dense, 50% subrounded to subangular gravel (1/4-1/2"), 40% silt, 10% fine sand		0.0	0.0	0830	03474200
			O									03474201
160			P				Bluish-green SILT - damp, stiff to hard, non-plastic, trace very fine sand, occasional wood fragments 45.5-46'		0.0	0.0	48	03474202
		Physical		10,12,14								03474203
			Q									03474203
							Boring terminated at 48 feet bgs on 11-17-03					
	50											
155												
	55											
150												

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Project: Hamilton-Labree/EPA **Project Location:** Chehalis, WA **Project Number:** RAC WA 100	**Log of Boring MW-604** Sheet 1 of 2

Date(s) Drilled	10/28 to 10/29/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	51.0
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	209.30
Groundwater Level (feet bgs)	4.55 on 11/25/03	Drill Bit Size/Type	6.25-inch ID auger	Top of PVC Elevation	209.06
Diameter of Hole (inches)	10 / Diameter of Well (inches) 4	Type of Well Casing	Sch 80 CPVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (7-37'); Filter sand (4-37'); Bentonite chips (1-4', 37-51'); Cement surface compl. (0-1')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch. Sampling performed 10/28 and 10/29, well installed 11/19/03.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				fill		Gravel surface and FILL					
-205	5				ml		Dark gray SILT - moist, description based on cuttings					
-200	10				gw		Gray-brown sandy GRAVEL - wet, 60% subrounded to subangular gravel, 30% fine to coarse sand					
-195	15		604	8,13,10			Same as above - wet, medium dense, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt			31.0	1112 1152	 03444000
-190	20											
-185	25		A 604A Metals	14,20,17			Same as above - dense, rock fragments			25.0	1430 1432 1050	 03444001 03444053
-180	30		B	50/6"			Same as above - very dense, rock fragments				1120	03444002

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-604

Elevation, feet (NGVD)	Depth, feet	Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	30		C	11,17,14	sw		Gray-brown gravelly SAND - wet, dense, 70% fine to coarse sand, 30% fine subrounded gravel				1133	
											1135	03444003/03444004
			D	10, 50/4"			Same as above - dense, rock fragments, 60% sand				1150	
										4.0	1155	03444005
			E	5,7,12			Same as above- medium dense, 70% sand, trace silt				1209	
175										0.2	1215	03444006
	35		GW-1								1255	03444007
			F	4,11,15	gw		Gray-brown sandy GRAVEL - wet, dense, 60% subrounded to subangular gravel, 30% fine to medium sand, some coarse sand, 10% silt				1340	
										4.0	1345	03444008
			G	15,19,22			Same as above - wet, very dense, 60% subrounded to subangular gravel, 30% fine to coarse sand				1405	
			604G Metals							0.8	1410	03444009
170											1415	03444054
	40		GW-2		gm		Gray-brown silty sandy GRAVEL - wet, dense, 50% subrounded to subangular gravel, 35% fine to coarse sand, 15% silt, yellow-brown oxidation				1450	03444010
			H	10,12,13							1510	
			I	6,10,14	sw		Gray-brown gravelly SAND - wet, medium dense, 70% fine to coarse sand, 30% fine subrounded gravel, rock fragments			0.4	1520	03444011
											1530	
										1.1	1535	03444012
165	45											
			GW-3								1605	03444013
			J	10,31,21	sw-gw		Gray-brown gravelly SAND to sandy GRAVEL - wet, dense, 50% fine to medium sand, 45% fine subangular gravel, rock fragments, weathered volcanics, oxidized yellow-brown				0855	
										0.1	0900	03444014
			K	7,8,4	gm-sm						0914	
			L				Gray-brown silty GRAVEL to silty SAND - wet, medium dense, 40% subrounded to subangular gravel, 40% fine to coarse sand, 20% silt, yellow-brown oxidation				0916	03444015
160			M	3,4,5	ml						0918	03444016
	50		N								0935	03444017
			604N Metals								0919	
							Bluish-green clayey SILT - moist, stiff, low to medium plasticity, trace to some fine to medium sand				0940	03444018
											0945	03444055
							Boring terminated at 51 feet bgs on 10-19-03					
155	55											
150	60											
145	65											
140	70											

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring MW-605** Sheet 1 of 2

Date(s) Drilled	11/17 to 11/18/2003	Logged By	E. Lillywhite	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	50.0
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	207.90
Groundwater Level (feet bgs)	4.22 on 11/24/03	Drill Bit Size/Type	6.25-inch ID auger	Top of PVC Elevation	207.23
Diameter of Hole (inches)	10 / Diameter of Well (inches) 4	Type of Well Casing	Sch 80 CPVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (10-35'); Filter sand (7-37'); Bentonite chips (2-7', 37-50'); Cement surface compl. (0-1')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				Fill		FILL, Gravel					0-12' Lithologic description based on log of GP-506
205												
	5				ml-cl		Light olive-gray clayey SILT - damp, medium soft, medium plasticity, trace fine sand, mottled gray-brown, oxidized					
200					ml		Same as above - increasing sand and gravel at 9'					
	10				gw-sw		Red-brown sandy GRAVEL - slightly wet, subrounded to subangular gravel median size 1", fine to medium sand, some silt/clay					
195			605A Physical	34,27,26	sw		Gray-brown gravelly SAND - wet, very dense, 60% fine to coarse sand, 35% subrounded to subangular gravel, 5% silt			0.0	0951	03474204 03474204
	15											
190												
	20											
185												
	25											

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-605

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25		B	6,50/5"			Same as above - mostly fine to medium sand, decreasing gravel			0.0	1156	03474205
180			C Physical	11,43,49	sm		Gray-brown silty SAND - wet, very dense, 60% fine to medium sand, 35% silt, trace subrounded to subangular gravel, partially cemented			0.0	1302	03474206 03474206
	30		D	5,12,11	sp		Gray-brown SAND (SP) - wet, medium dense, fine to medium sand, 10% silt				1310	03474207
			E	12,24,33						0.0	1319	03474208
175			F		sp-gp		Gray-brown SAND and GRAVEL - wet, very dense, mostly medium sand, 40% subrounded gravel, 15% silt, partial cementation					03474209
			G	33,36,50/3"	sp ml		Gray-brown SILT - very dense, damp, stiff, nonplastic			0.0	1330	03474210
			H		gm		Gray-brown silty GRAVEL - wet, dense, 60% subrounded to subangular gravel, 20% fine to coarse sand, 20% silt					03474211 03474212
	35		GW-1									
			I	11,24,50/5"	sp		Gray-brown SAND (SP) - wet, fine to coarse sand grading to fine to medium sand, trace subrounded to subangular gravel, trace silt			0.0	1440	03474213
170			J Physical	36,50/5"	sm-gm		Gray-brown silty SAND to silty GRAVEL - wet, very dense, 40% subrounded to subangular gravel, 40% silt, 20% fine to coarse sand, grading less silty at 38'			0.0	1452	03474214 03474213
			GW-2									03474215
	40		K	25,23,17			Same as above - slightly cemented, oxidized 40.5-41'			0.0	1546	03474216
			L	26,50/4"	sp		Gray-brown SAND - wet, medium dense to dense, mostly fine to medium sand with trace coarse, 5% silt			0.0	1600	03474217
165			GW-3									03474218
	45		M	19,36,44			Same as above - some oxidized sand, increasing fine sand and silt content			0.0	0819	03474219
			N	16,50/6"			Same as above - with coarse sand, gravel 0.25-1"			0.0	0831	03474220
160			O	5,9,11	ml		Brown SILT (ML) - damp, hard, non-plastic, oxidized, contacts			0.0	0858	03474221/03474222
			P Q Physical	9,17,19			Bluish-green SILT (ML) - damp to dry, stiff to hard, trace very fine sand, non-plastic			0.0	0913	03474223 03474224
			R									03474224
	50						Boring terminated at 50 feet bgs on 11-18-03					03474225
155												
	55											
150												

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring MW-606** Sheet 1 of 2

Date(s) Drilled	10/30/03	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	49.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	208.70
Groundwater Level (feet bgs)	5.71 on 11/6/03	Drill Bit Size/Type	4.25-inch ID auger	Top of PVC Elevation	206.83
Diameter of Hole (inches)	8 / Diameter of Well (inches) 4	Type of Well Casing	Sch 40 PVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (20-40'); Filter sand (18-40'); Bentonite chips (2-16', 40-49.5'); Cement surface compl. (0-2')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				fill		FILL - Sand and Gravel					0-8' Lithologic description based on log of GP-511
					ml		Light olive-brown clayey SILT - moist, medium soft, mottled reddish-brown, trace fine sand, roots					
205							Light olive brown to reddish-brown SILT - moist, stiff, increasing gravel with depth, grading to GM 7-8'					
	5											
					gm		increasing gravel and sand based on drilling observations					
200				2,3,2	sw		Gray-brown gravelly SAND - wet, loose, 70% fine to medium sand, 25% subrounded to subangular gravel, 5% silt		0.0	4.0	1407	
	10											
195												
	15		Physical	5,3,2	gw		Gray-brown sandy GRAVEL - wet, loose, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt		0.0	2.2	1420 1422	03444019
190												
	20											
185												
	25											

URS

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-606

Elevation, feet (NGVD)	Depth, feet	Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25		Metals	6,8,9	gm-sm		Gray-brown silty sandy GRAVEL - wet, medium dense, subrounded to subangular gravel, fine to coarse sand, oxidized yellow-brown		0.0	0.4	1432	03444040
180												
	30		606	10,16,17	gm		Gray-brown silty GRAVEL - moist, dense, 50% subrounded to subangular gravel, 35% fine sand, 15% silt		0.0	5.1	1443	
											1445	03444020
			A	7,20,18	gw		Gray-brown sandy GRAVEL- wet, dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt, yellow-brown oxidized fine sand and silt		0.0	7.4	1455 1505	03444021
175			GW-1								1525	03444022/03444028
	35		B	8,6,5	sp		Gray-brown SAND - wet, mostly fine to medium sand, trace gravel, trace silt		0.0	37	1532 1533	03444023
			C D	8,13,16	sp-sm		Gray-brown silty SAND - wet, dense, mostly fine to medium sand, increasing coarse sand and gravel at 37.5', rock fragments		0.0	24	1540 1535 1542	03444024 03444025
170			E	8,15,18	gm		Gray-brown silty GRAVEL - moist, dense, 50% subrounded to subangular gravel, 35% fine sand, 15% silt, oxidized yellow-brown fine sand and silt		0.0	8.5	1546 1548	03444026
	40		GW-2								1610	03444027
			F Physical	5,9,16	sw-gw		Gray-brown SAND and GRAVEL - wet, dense, 50% subrounded to subangular gravel, 50% fine to medium sand, slightly silty			0.0	1625 1627 1630	03444029 03444034
165			G	8,18,18						0.0	1642 1645	03444030
	45		GW-3								1655	03444031
			H	2,3,4	ml		Reddish-brown grading to bluish-green SILT (ML) - very moist, stiff, low to medium plasticity, trace fine to medium sand			0.0	1706 1710	03444032
160			Physical I	2,3,3						0.0	0810 0815 0817	03444035 03444033
	50						Boring terminated at 49.5 feet bgs on 10-30-03					
155												
	55											

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URS

Project: Hamilton-Labree/EPA Project Location: Chehalis, WA Project Number: RAC WA 100	Log of Boring MW-607 Sheet 1 of 2

Date(s) Drilled	10/21 to 10/22/2003	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	49.0
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	207.20
Groundwater Level (feet bgs)	6.04 on 11/7/03	Drill Bit Size/Type	4.25-inch ID auger	Top of PVC Elevation	206.88
Diameter of Hole (inches)	8 Diameter of Well (inches) 2	Type of Well Casing	Sch 40 PVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (20-40'); Filter sand (18-41'); Bentonite chips (16-18', 40-49'); Silica grout (2-16'); Cement surface compl. (0-2')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	0				Fill		FILL - Sand and Gravel					0-8.5' Lithologic description based on log of GP-509
205					cl-ml		Gray silty CLAY to clayey SILT- medium soft, damp, low to medium plasticity					
					ml		Light olive brown SILT - slightly moist, stiff, nonplastic, some fine sand					
	5											
200					ml		Gray-brown SILT with gravel - increasing gravel to 2"					
		X		2,6,9	gw		Brown sandy GRAVEL - wet, medium dense, rock fragments, fine to coarse sand, 10% silt to fine sand		0.0	0.0	1515	
	10											
195												
	15	X		6,11,11			Same as above - wet, medium dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt		0.0	0.0	1530	
190												
	20											
185												
	25											

URS

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-607

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
	25			5,7,9	sw		Gray-brown gravelly SAND (SW) - wet, medium dense, 60% fine to coarse sand, 30% subrounded to subangular gravel, 10% silt					
180												
	30		607	7,13,16					0.0	0.0	0850	03434250
			A	11,12,15			Same as above - wet, dense, 65% fine to coarse sand, 25% subrounded to subangular gravel, 10% silt				0925	03434251
175			B	12,12,13	gw		Gray-brown sandy GRAVEL - wet, dense, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt				1425	03434252
			C	12,14,16	sw		Gray-brown gravelly SAND - wet, dense, 70% fine to coarse sand, 25% subrounded to subangular gravel, 5% silt				1430	03434253
	35		GW-1									
			D	8,21,32					0.0	0.0	1450 1515	03434254 03434255
170			E	12,14,16	sw-gw		Gray-brown gravelly SAND to sandy GRAVEL (SW-GW) - wet, dense, 50% fine to coarse sand, 50% subrounded to subangular gravel				1544	03434256/03434257
			GW-2								1610	03434258
	40		F	12,16,17					0.0	0.0	1620	03434259
165			G	8,11,14							1635	03434260
	45		GW-3								1645	03434261
			H	10,7,8			Same as above - bluish-green silt in sample shoe				1658	03434262
160			I	2,3,3	ml		Bluish-green SILT - very moist, medium stiff, low to medium plasticity, trace fine to medium sand				1700	03434263
			J								1712	03434264
							Boring terminated at 49 feet bgs on 10-22-03					
	50											
155												
	55											
50												

URS

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Project: Hamilton-Labree/EPA **Project Location: Chehalis, WA** **Project Number: RAC WA 100**	**Log of Boring MW-608** Sheet 1 of 2

Date(s) Drilled	10/24/2003	Logged By	J. Rapp	Checked By	M. Meyer
Drilling Method	Hollow Stem Auger	Drilling Contractor	Tacoma Pump and Drilling	Total Depth Drilled (FT BGS)	47.5
Drill Rig Type	Foremost	Sampler Type	Split Spoon/Dames and Moore	Surface Elevation	205.90
Groundwater Level (feet bgs)	5.90 on 11/8/03	Drill Bit Size/Type	4.25-Inch ID auger	Top of PVC Elevation	205.59
Diameter of Hole (inches)	8 Diameter of Well (inches) 2	Type of Well Casing	Sch 40 PVC	Screen Perforation	0.010"
Type of Sand Pack	10/20 Silica	Type and Depth of Seal(s)	Well screen (26-46'); Filter sand (24-47'); Bentonite chips (22-24', 47-47.5'); Silica grout (2-22'); Cement surface compl. (0-2')		
Comments	Split spoon and Dames/Moore samplers driven with 300-lb hammer. Groundwater samples collected with hydropunch.				

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
205	0				ml		Reddish-brown SILT (ML) - damp, medium soft, some fine sand, increasing gravel and clay at 4'					0-8' Lithologic description based on log of GP-518
	5				ml		Same as above - subrounded to subangular gravel					
200					gw-sw		Gray-brown sandy GRAVEL to gravelly SAND - slightly wet, loose, 45% subrounded to subangular gravel, 45% fine to coarse sand, 10% silt					
				3,2,3	gw		Gray-brown sandy GRAVEL - wet, loose, 60% subrounded to subangular gravel, 25% fine to coarse sand, 15% silt				1625	
195	10											
190	15			5,8,15	gw		Gray-brown sandy GRAVEL - wet, medium dense, 60% subrounded to subangular gravel, 30% fine to coarse sand, 10% silt				1632	
185	20											
	25											

URS

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Project: Hamilton-Labree/EPA
Project Location: Chehalis, WA
Project Number: RAC WA 100

Log of Boring MW-608

Elevation, feet (NGVD)	Depth, feet	SAMPLES Type	Number	Blows per 6-Inch Interval	USCS Code	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	PID (ppm)	Headspace PID (ppm)	Drilling Rate (24-hr clock)	REMARKS/ SAMPLE TRACKING NUMBERS
180	25			4,8,12	sw-gw		Gray-brown sandy GRAVEL to gravelly SAND (GW-SW) - wet, medium dense, 50% fine to coarse sand, 45% subrounded to subangular gravel, 5% silt			2.1	0905	
175	30		608	11,18,24	gw		Same as above - dense, weathered gravel, various colors			1.4	0918	
			A	7,14,12	gw		Gray-brown sandy GRAVEL - wet, medium dense, 50% subrounded to subangular gravel, 40% fine to coarse sand, 10% silt, oxidized		0.0	0.7	0920 0940 0942	03434265 03434266
			B	7,12,11					0.0		0957 0959	 03434267
170	35		GW-1				Same as above - wet, dense, 60% subrounded to subangular gravel, 35% fine to coarse sand, 5% silt			0.9	1020	03434268
			C (FD)	11,12,11					0.0		1028 1020	 03434269/03434270
			D	11,17,18			Same as above - dense, dark brown, rock fragments, yellow-brown oxidized sand			0.7	1040 1045	 03434271
165	40		GW-2								1100	03434272
			E	7,9,13	sw		Gray-brown gravelly SAND - wet, medium dense, 60% fine to medium sand, 35% subrounded to subangular gravel, 5% silt				1110 1115	 03434273
			F	17,20,15			Same as above - dense, dark gray, rock fragments			0.2	1120 1125	 03434274
160	45		GW-3								1145	03434275
			G H	2,3,3	ml		Bluish-green SILT - very moist, medium stiff, low to medium plasticity, 10% fine to medium sand				1155 1157 1200	03434276 03434277
155	50						Boring terminated at 47.5 feet bgs on 10-24-03					
150	55											

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10_Farallon Logs 2003-2004

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LOG OF WELL MW-BP-1 (MW-26)

(Page 1 of 1)

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-001

SITE NAME

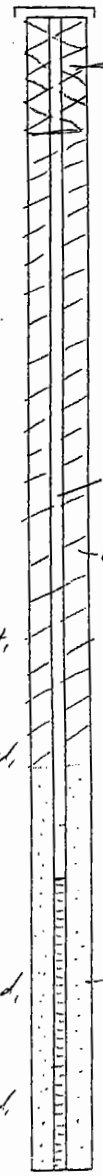
CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 8/28/03 0800
Date/Time Completed :
Total Depth : 25.0' bgs
Drilling Method : HSA
Sampler Type : D+M 18"x2"
Depth to water ATD : –

Well: MW-BP-1
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	5/3/10		5.4	ML		5.0-6.5 SILT (100%), brown w/gray mottling, moist, no odor
10	X	85	7/23/30		13.2	ML		10.0-10.3 SAME AS ABOVE
						GM		10.3-11.5 GRADES TO GRAVEL (50% fn grvl, 45% silt, 5% fn sand), gray w/brown mottling, moist, no odor, poorly graded, sub-rnd to sub-ang. grvl.
	X	50	14/37/31		13.2	GM		11.5-13.0 GRAVEL (75% cs gravel, 15% silt, 10% fine sand), red-brown, moist, no odor, poorly graded, angular gravel.
	X	10	33-50/4"		11.6	GP		13.0-14.5 GRAVEL (85% fn-cs grvl, 15% fn-cs sand, trace silt), brown w/red-brown mottling, moist, no odor, poorly graded, angular gravel.
15	X	5	30-50/4"		11.6	GM		14.5-16.0 ROCK IN SAMPLER, GRAVEL (70% cs grvl, 15% silt, 15% fn-cs sand) brown moist, no odor, poorly graded, ang. gravel.
	X	20	27/37/42		8.2	GP		16.0-17.5 GRAVEL (90% fn-cs grvl, 5% fn-cs sand, 5% silt), brown, moist, no odor, poorly graded ang. gravel.
	X	30	35-50/6"			GM/GM		17.5-19.0 GRAVEL (85% fn-cs grvl, 10% silt, 5% fn-cs sand), brown, wet, no odor, poorly graded, sub-rnd to ang. gravel
	X		8/10/12					
20								



Drilling Company: LASLADE
Drilling Crew: BRIAN, ELI, JASON
Farallon Rep. G. LISH
Ground Elevation: –.
Back Fill Material: PURE GOLD BENTONITE CHIPS

LOG OF WELL MW-BP-1

(Page 1 of 2)

CASING: 4" DIAMETER PVC
SCREEN INTERVAL: 15.0-25.0' bgs (0.010-slot)
FILTER PACK: #2/12 SAND (13.0-25.0' bgs)
LAPIS LUSTRE MONTEREY SAND

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LOG OF WELL MW-BP-1

(Page 1 of 1)

MW-BP-1 (MW-26)

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-001

SITE NAME

CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 8/28/03 0800
Date/Time Completed : 8/28/03 1120
Total Depth : 25.0' bgs
Drilling Method : HSA
Sampler Type : DPM
Depth to water ATD : –

Well: MW-BP-1
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	25			4.2	GP/GM		19.0-20.5 SAME AS ABOVE (85% fn-cs gvl, 10% fn-cs sand, 5% silt)
	X	50	20/34/40		7.3	GP/GM		20.5-22.0 SAME AS ABOVE, reddish-brown
	X	5	23-50/5"		10.5	GP		22.0-23.5 ROCK IN SAMPLER, GRAVEL (90% cs gvl, 5% fn-cs sand, 5% silt), red-brown, wet, no odor, ang. gravel, poorly graded.
	X	5	33-50/4"		8.3			
25								
10								
15								
20								

Well Diagram: SAND

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELY, JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: –
Back Fill Material: PURE GOLD BENTONITE CHIPS

LOG OF WELL MW-BP-1

(Page 1 of 1)

CASING: 4" PVC
SCREEN INTERVAL: 15-25' bgs (0.010-slot)
FILTER PACK: #2/12 SAND (13.0-25.0' bgs)

MONUMENT: 14"-DIA. HEAVY-DUTY FLUSH MOUNT

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SITE NAME

CLIENT

PROJECT #

LOG OF WELL MW-~~26~~ BS 28

(Page 1 of ~~1~~ 2) BS

Date/Time Started : 9-2-03 @ 1045
Date/Time Completed :
Total Depth of boring : 37' bgs.
Drilling Method : HSA
Sampler Type : —
Depth to water ATD : ≈ 11'

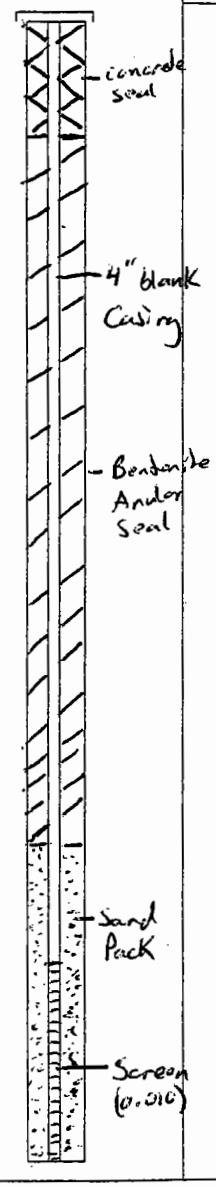
Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-001/2

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
10								
15								
20								

Not Sampled logged BS 9-2-03

BS 9-2-03

Well: MW-26
Elev.:



Drilling Company: Cascade Drilling, Inc.
Drilling Crew: Brian, Frank, Jason
Farallon Rep. Greg L., Beau S.
Ground Elevation:
Back Fill Material: Pure Gold Med. bentonite chips

LOG OF WELL
MW-26 (Page 1 of ~~1~~ 2) BS

Screen interval ≈ 36.5 BS - 16.5 BS' bgs. (0.010 slot)
Filter pack - #2/12 Lapis Lustre Monterey Sand
well depth - ≈36.5 BS
casing - 4" diameter Schedual 40 PVC

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LOG OF WELL

MW-~~26~~ 28 (Page ~~1~~ 2 of ~~1~~ 2) BS

Date/Time Started : 9-2-03 @ 1045
Date/Time Completed :
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :
} See page 1

SITE NAME
CLIENT
PROJECT #

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-00~~1~~ 2 BS

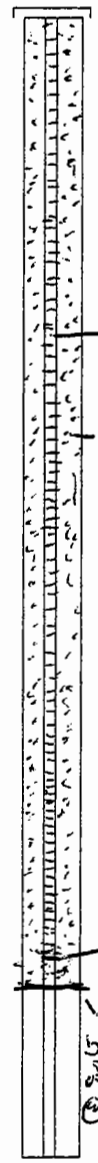
Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
10								
15								
20								

Not Sampled or Logged

BS 9-2-03

BS 9-2-03

Well: MW-26
Elev.:



Depth in Feet: 20, 25, 30 ~~10~~ BS, 35 ~~15~~ BS, ~~20~~ BS

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:
} See page 1

LOG OF WELL
MW-26 (Page ~~1~~ 2 of ~~1~~ 2) BS

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LOG OF WELL MW-BP-2 (MW-29)

(Page 1 of 1)

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

SITE NAME

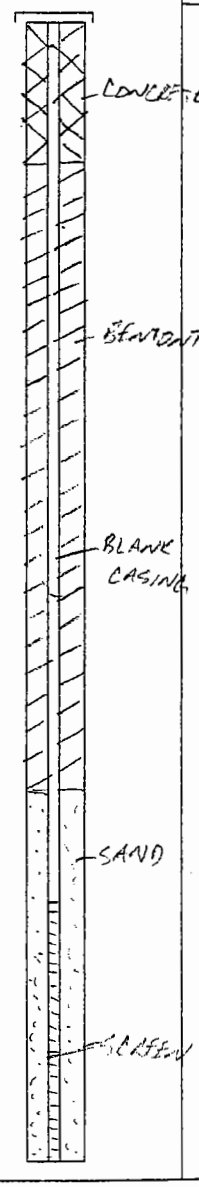
CLIENT BREON

PROJECT # 734-001

Date/Time Started : 9/9/03 @ 8:45
Date/Time Completed : 9/9/03 @ 11:50
Total Depth : 25.0' bgs
Drilling Method : L.A. HSA
Sampler Type : 2" OD Split Spoon
Depth to water ATD : ~15.5' bgs

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
	X	100		MW-BP-03-01 @ 0815		ML		5.0-6.5 SILT / [illegible]
10								
15	X	10		MW-BP-03-02 @ 0850		BP-Lab		15.0-15.5 1/2 FULL
	X	0	[illegible]					16-16.5 NO RECOVERY
20								

Well: MW-BP-2
Elev.: —



Drilling Company: Cascade Drilling
Drilling Crew: Brian, Jason, Frank
Farallon Rep. B. Johnson
Ground Elevation: -
Back Fill Material: FILTER PACK: LAPIS LUNA [illegible] 13.5'-25.0' bgs
ANNULAR SEAL: PURE GOLD MEDIUM BENTONITE CHIPS (2.0'-13.5' bgs)
SURFACE SEAL: [illegible] 0-2.0' bgs
MONUMENT: 14" DIA. H.D. FLUSH GRADE MONUMENT
SCREEN: 15.5'-25.0' bgs, 0.010" slot
CASING: [illegible] PVC [illegible]

LOG OF WELL
MW-BP-2 (MW-29)
(Page 1 of 1)

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LOG OF WELL MW-BP-2 (MW-29

(Page 2 of 2)

SITE NAME

CLIENT

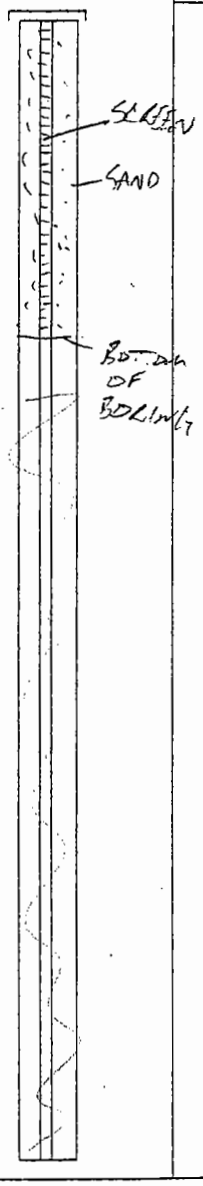
PROJECT #

Date/Time Started :
Date/Time Completed : SEE PAGE 1
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Hamilton/Lake Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-10

Depth in Feet	Samples	% Rec-overy	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								NOT LOGGED/SAMPLED
5								
10								
15								
20								

Well: MW-BP-2
Elev.:



Depth in Feet: 0, 5, 10, 15, 20

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

SEE PAGE 1

LOG OF WELL MW-BP-2

(Page 2 of 2)

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02-14-2

(MW-3D)

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LOG OF WELL MW-BP-3 (MW-3D)

(Page 1 of 1) BS

Date/Time Started : ~~9-16~~ 9-8-03
Date/Time Completed : 9-8-03
Total Depth : 48.5' bgs
Drilling Method : HSA w/limited access rig
Sampler Type : 2" SS 18" w/140 lb hammer
Depth to water ATD : ≈ 15.5' bgs

~ filter pack = 34-36.5' bgs.
~ annular seal = 2-34' bgs.
~ surface seal = 0-2' bgs.

SITE NAME: Hamilton/LaBree Superfund
CLIENT: Breen
PROJECT # 734-002

Well: MW-BP-3
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5		6/8/9	100		3.4	ML		5-6' SILT (100% silt), grey with mottled reddish brown, moist, no odor,
		12/14/17	100		16.9	ML		6-6.5' SILT (100% silt, trace fine gravel) grey with reddish brown mottling, moist, no odor
						ML		6.5-6.75 ~same as above
		15/14/18	90		4.2	ML		6.75-8.0 ~same as above (100% silt), trace organics
						ML		8.0-9.5 ~same as above (90% silt, 10% fine to coarse gravel), trace organics
10		8/9/30	90		9.3	ML		9.5-10.25 ~same as above (100% silt)
						ML		10.25-10.5 sharp contact with SILT (100% silt, trace fine sand) light brown, moist, no odor
		30-50/5	70		18.6	ML		10.5-11.0 gradational contact with SILT (80% silt, 10% fine to coarse gravel, 10% fine to coarse sand) reddish brown, moist, no odor
		35-50/5	10		15.1			
		60/6	0			ML		11.0-11.25 SILT (100% silt) reddish brown with grey mottling, moist, no odor
15		75/6	40		30.1			
						SM		11.25-11.75 SAND (65% fine to coarse sand, 25% silt, 10% fine to coarse gravel) light grey, moist, no odor
		65/6	10		6.2			
		70/6	30		25.0	GP		11.75-12.5 gradational contact GRAVEL (65% fine to coarse gravel, 30% sand, 5% silt) reddish brown, moist, no odor, poorly graded
		65/6	50		32.9			
						-		12.5-14.0 rock in sampler, no recovery
		100/5	50		13.2	-		14.0-14.5 no recovery
20						GP		15-15.5 GRAVEL (85% fine to coarse

Drilling Company: Cascade Drilling
Drilling Crew: Brian, Frank, Saven
Farallon Rep. Beau, Greg
Ground Elevation:
Back Fill Material:

MW-BP-3 (MW-3D)
LOG OF WELL
(Page 1 of 1) BS

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02-14-2

★ Screen interval 36-46' bgs, 2" diameter Sch 40 PVC, 0.010-slot, well depth = 46' bgs, annular seal = Pure Gel medium chips, filter pack = 20/40 Monterey Sand, surface seal = concrete, 14" diameter HDPE flush-mount monument

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LOG OF WELL

mw-BP-3 (mw-3D) (Page ~~1~~ 2 of ~~1~~ 3)

SITE NAME

CLIENT

PROJECT #

Date/Time Started :
Date/Time Completed :
Total Depth :
Drilling Method : see page 1
Sampler Type :
Depth to water ATD :

Well: mw-BP-3
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION	Depth in Feet
20	X	100	75/6		39.2			gravel, 10% fine to coarse sand, 5% silt) olive brown, wet, no odor,	20
	X	85	85/6		24.2			poorly graded	
						SP/SM		16.0-16.5 ROCK IN SAMPLER, SAND (70% fine	
	X	90	35-50/5		12.6			sand, 20% fines and 10% silt) olive brown, wet,	
								no odor, poorly graded sub angular to ang. gravel	
						GP		17.0-17.5 GRAVEL (70% fine to coarse	
								gravel, 25% fine to coarse sand, 5% silt)	
								olive brown, wet, no odor, poorly	
25	X	100	65/6		33.3			graded with sub-rounded gravel	25
						SW/SM		18.0-18.5 SAND (55% fine to coarse	
								sand, 35% fine to coarse gravel, 10%	
								silt) olive brown, wet, no odor,	
								well graded	
					1	SW/SM		19.0-19.5 ~ same as above	
								(possible sluff)	
						SP		20-20.5 SAND (90% fine to coarse	
								sand, 10% fine to coarse gravel, trace	
								silt) dark brown, moist, no odor,	
5/10								poorly graded, sub-round to rounded	5/10
	X	75	25-30/4		52.6			gravel	
						GW		21.0-21.25 GRAVEL (50% fine to	
								coarse, 45% fine to coarse sand, 5%	
								silt) greyish brown, wet, no odor,	
								well graded	
						GP/GM		21.25-21.50 GRAVEL (85% fine to	
								coarse gravel, 10% silt, 5% fine to	
								coarse sand) reddish brown, moist, no	
								odor, poorly graded	
5/15						GP		21.0-22.25 GRAVEL (85% fine to coarse	5/15
	X	90	100/6		20.3			gravel, 15% fine to coarse sand, trace silt)	
								greyish brown, wet, no odor, poorly	
								graded	
						SP/SM		22.25-22.75 SAND (85% fine to	
								coarse sand, 10% silt, 5% fine to	
								coarse gravel) brown, wet, no odor	
								poorly graded	
						GP		22.75-23.0 GRAVEL (90% fine to	
								coarse gravel, 5% fine to coarse sand,	
4/20								5% silt) light brown, wet, no odor.	4/20

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:
see page 1

LOG OF WELL
(mw-3D)
(Page ~~1~~ 2 of ~~1~~ 3)

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02-14-2

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LOG OF WELL

MW-BP-3 (MW-3) (Page 1 of 1)

SITE NAME: Hamilton

CLIENT:

PROJECT #:

Date/Time Started :
Date/Time Completed :
Total Depth : 48.5' bgs
Drilling Method :
Sampler Type :
Depth to water ATD :

~ screen interval 36-46' bgs
~ 0.020 screened screen
~ 2" diameter Schedule 40 PVC

Well: MW-BP-3
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	100	100/6		12.4			poorly graded
						SP		25.0-25.25 SAND (80% fine to coarse sand, 20% fine to coarse gravel, trace silt) dark brown, wet, no odor, poorly graded & sub-rounded gravel
						SM		25.25-25.50 SAND (55% fine to coarse sand, 30% fine to coarse gravel, 15% silt) brown, wet, no odor, poorly graded
45	X	0	100/6			SP		30.0-30.5 SAND (100% fine to med. sand) dark brown, wet, no odor, poorly graded
						GP/GM		30.5-30.75 GRAVEL (80% fine to coarse gravel, 10% fine to coarse sand, 10% silt) brown, wet, no odor, poorly graded
	X	100	12/25/33		2.4	GM		30.75-31.0 GRAVEL (80% fine to coarse gravel, 15% silt, 5% fine to coarse sand) brown, wet, no odor, poorly graded
50						GM		35-35.50 GRAVEL (60% fine gravel, 15% fine sand, 15% silt) brown, wet, no odor, poorly graded gravel
						GM		40-46.5 ~ same as above
						-		45-45.5 ~ no recovery
						ML		47-48.5 SILT ~ [illegible]
55								
60								

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

~ see page 1

LOG OF WELL

MW-BP-3 (MW-3) (Page 1 of 1)

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02-14-2[illegible]

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LOG OF WELL MW-31

(Page 1 of 2)

SITE NAME

CLIENT

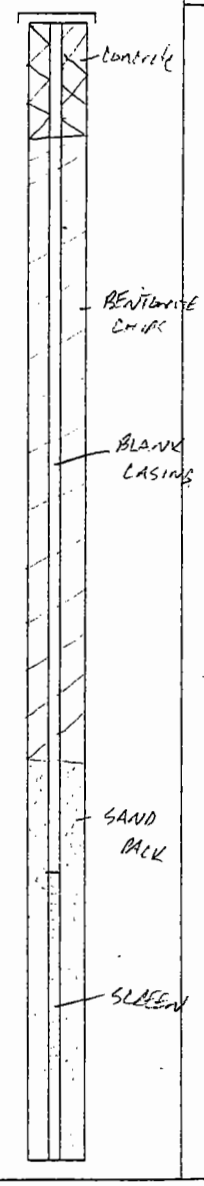
PROJECT #

Date/Time Started : 9/10/03 0800
Date/Time Completed : 9/10/03 1015
Total Depth :
Drilling Method : HSA
Sampler Type : DPM SS. 18"
Depth to water ATD : ~ 15.0'

Hamilton/Labree Roads Groundwater Contamination Superfund Site Farallon PN: 734-001

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
10								
15								
16	X	40			23-30-30			16-17.0
17	X	70			36-33-36			17-15.0
18	X	35			46-56-56			18-20.0
19	X	80			6-33-56			
20								

Well: MW-31
Elev.: -



Drilling Company: CASCADE DRILLING
Drilling Crew: BROWN, FRANK, JASON
Farallon Rep. G. LISM, R. JOHNSON
Ground Elevation: -
Back Fill Material: FILTER PACK: LAKE LUCTA [illegible] PURE GOLD MEDIUM BENTONITE [illegible] CONCRETE, 0-2.0' BGS MONUMENT: 10" FLUSH [illegible]

LOG OF WELL MW-31

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LOG OF WELL MW-31

(Page 2 of 2)

SITE NAME

CLIENT

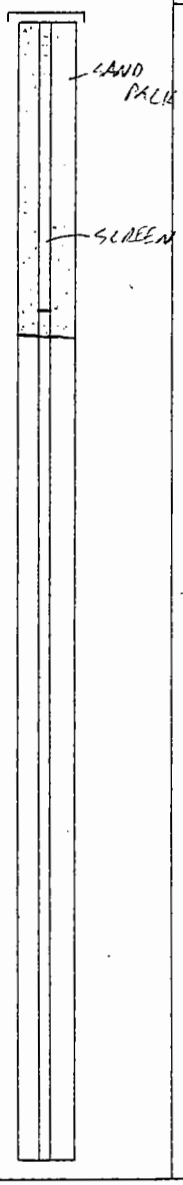
PROJECT #

Date/Time Started :
Date/Time Completed :
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Hamilton/Labree Roads Groundwater Contamination Superfund Site Farallon PN: 734-001

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								NOT LOGGED
5								
10								
15								
20								

Well: MW-31
Elev.:



Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL MW-31

(Page 2 of 2)

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02-14-26

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LOG OF WELL MW-32

(Page 1 of 1)

SITE NAME

CLIENT

PROJECT #

Date/Time Started : [illegible] 1245
Date/Time Completed : [illegible] 1530
Total Depth : 4.5'
Drilling Method : HSA
Sampler Type : Dam [illegible]
Depth to water ATD : 12.0' [illegible]

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-001

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
10	X	20			341.9	GP		10-11.5 GRAVEL (60% fine sand, 5% fines and (35% silt) brown and mottled moist no odor, pea gravel [illegible]
	X	20			28.8	ML		11.5-12.0 [illegible] SILT (85% silt, 15% fine sand) brown moist no odor
						GP/GM		12.0-13.0 CONCRETE and GRAVEL (70% gravel, 20% fine sand, 10% silt) brown moist no odor, pea gravel with concrete
	X	15			512.7	GP/GM		13.0-14.5 RECV IN SAMPLER SAME AS ABOVE (75% fine sand 15% fines sand 10% silt) no odor
15	X	20			16.5	GP		14.5-16.0 SAME AS ABOVE (65% [illegible] 30% fine sand 5% silt)
	X	35		MW-32-[illegible] - DC @ 1550	(1)	GP/GW		16.0-17.5 [illegible] ABOVE [illegible]
	X	35		MW-32-[illegible] - DC @ 11/20	(2)	GP/GW		17.5-19.0 SAMPLED ABOVE SAMPLED IN ABOVE
20	X	0						19-20.5 NO RECOVERY

Well: MW-32
Elev.:

Depth in Feet

Drilling Company: CASCADE
Drilling Crew: [illegible]
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: -
Back Fill Material: [illegible] PACKER [illegible]

GROUND MONUMENT
APPROX. 3.6' ABOVE GROUND SURFACE

LOG OF WELL MW-32

(Page 1 of 1)

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02-14-20

- Shallow Soil - Pure Gold medium [illegible]
- Surface Soil [illegible]
- [illegible]

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LOG OF WELL MW-32

(Page ~~1~~ 2 of ~~1~~ 2)

SITE NAME

CLIENT

PROJECT #

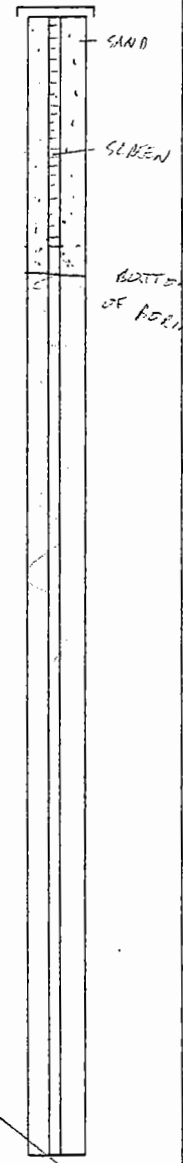
Date/Time Started :
Date/Time Completed : SEE PAGE ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Hamilton/Lehman Park
Grant ...

~~GL~~ 2

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	0		MW-UA1003-07 @ 1415 (1)				20.5-22.0 NO RECOVERY
						bw/sp		22.0-23.5 SIMILAR TO ABOVE CONTACT IN SIEVE w/ trace of fine sand (100%)
25								
10								
15								
20								

Well: MW-32
Elev.:



Drilling Company: SEE PAGE ONE
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL MW-32

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LOG OF WELL MW-BP-4

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MW-BP-4

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-002 GL 2

SITE NAME

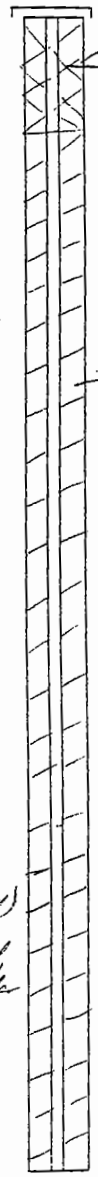
CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 8/28/03 1300
Date/Time Completed : 8/28/03 1640
Total Depth : 45.0' bgs
Drilling Method : HSA
Sampler Type : DLM S.S. 18" w/300lb HAMMER
Depth to water ATD : ~14.0

Well: MW-BP-4
Elev.: -

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
10								
15	X	100	15/19/22		0.5	ML		15.0-15.2 SILT (80% silt, 20% fn-cs sand) gray-brown, moist, no odor. 15.2-16.5 CONTACT w/ SAND (65% fn-cs sand, 30% fn gravel, 5% silt), red-brown, moist, no odor well graded sand.
20								



Depth in Feet: 0, 5, 10, ATD, 15, 20

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELI, JASON
Farallon Rep. G. LISH, B. JOHN
Ground Elevation: -
Back Fill Material: PURE GOLD BENTONITE CHIPS

LOG OF WELL
MW-BP-4
(Page 1 of 1) GL 3

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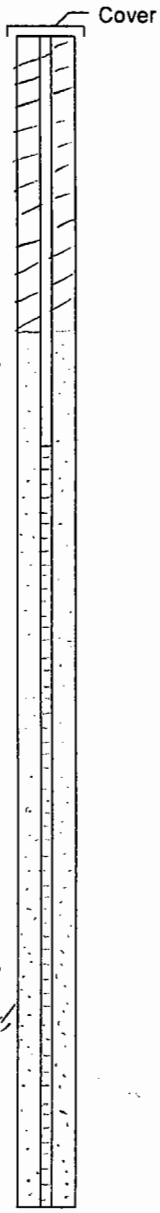
LOG OF BORING MW- BP-4

(Page ~~1 of 2~~ 2 of 3)

SITE NAME	Date/Time Started : 8/28/03 1300	Drilling Method	: HSA
CLIENT	Date/Time Completed :	Sampler Type	: DM SS. 18"x2"
CITY, STATE	Equipment : CME 75	Depth Of Water ATD	: 14'
Farallon PN: 734-002	Drilling Company : CASCADE	Total Depth	~: 45.0' bgs
Logged By: GREG LISH	Drilling Forman : BRIAN		

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	100	18-50/5"		0.8	SW		20-21.5 SAND (95% fn-med sand, 5% fn-cs gvl, trace silt) dark brown, v. moist, no odor, well graded sand.
25	X	110	17/22/31		1.2	SW SW		25.0-26.0 ~~SAND (ML~~ SAME AS ABOVE 26.0-26.5 GRADES TO SAND (80% fn-med sand, 10% fn gvl, 10% silt), brown, wet, no odor, well graded sand
30 ~~10~~	X	55	28-50/6"		2.3	GW		30-31.5 GRAVEL (65% fn-cs gvl, 30% fn-cs sand, 5% silt), brown, wet, no odor, well graded sand + gvl
35 ~~15~~	X	65	31-50/6"		0.8	GW ML GW		35.0-35.5 SAME AS ABOVE 35.5-36.2 CONTACT w/ SILT (100%), red-brown, moist, no odor. 36.2-36.5 CONTACT w/ GRAVEL (75% fn-cs gvl, 20% fn-cs sand, 5% silt), brown w/red mottling, moist, no odor, well graded sand + gvl.
20								

Well: MW-
Elev.:



FLUSH MOUNT WELL INFORMATION
Cover: 14" DIA. H.D. Grout: CONCRETE 0'-2' bgs
Casing: 4" PVC Seal: BENTONITE 2'-25' bgs
Screen: 0.010 Sand Pack: LAPIS LUSTRE #2/12 MONTEREY SAND 25'-45'
27'-42' bgs

LOG OF BORING MW-

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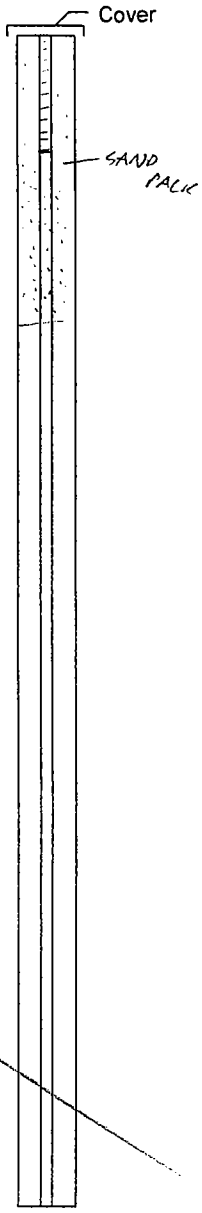
LOG OF BORING MW- BP-4

(Page 1 of 2)

SITE NAME CLIENT CITY, STATE	Date/Time Started :		Drilling Method :
	Date/Time Completed :	SEE PAGE ONE	Sampler Type :
	Equipment :		Depth Of Water ATD :
Farallon PN:	Drilling Company :		Total Depth :
Logged By:	Drilling Forman :		

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	20	33-50/3"		0.4	SP		40-41.5 SAND (90% sand fn-cs, 5% fn gvl, 5% silt), red-brown, wet, no odor, sand grades from fn sand to cs sand @ bottom.
45	X		15/34/35			ML		43.5-45.0 SILT (100%), red-brown grading to blue-grey, moist, no odor.
10								Bentonite Seal
15								
20								

Well: MW- BP-4
Elev.:



WELL INFORMATION

Cover:	Grout:	SEE PAGE TWO
Casing:	Seal:	
Screen:	Sand Pack:	

LOG OF BORING MW- BP-4

(Page 1 of 2)

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Issaquah, WA 98027

LOG OF WELL RS-3D

(Page 1 of 2)

SITE NAME

CLIENT

PROJECT #

Date/Time Started : 9/4/03 0800
Date/Time Completed : 9/4/03 1300
Total Depth : 47.5
Drilling Method : HSA
Sampler Type : D&M SS 18" x 2"
Depth to water ATD : ~17' bgs

Hamilton/Labree Ro
Groundwater Contami
Superfund Site
Farallon PN: 734-002

Well: RS-3D
Elev.: –

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	2/4/6		6.4	ML		5.0-6.5 SILT (100% fine organics), blu-gray w/ orange-brown mottling, v. moist, no odor
	X	30	15/23/18		6.8	ML		6.5-8.0 GRAVEL (70% fc gvl, 20% silt), orang-brown moist, no odor, p. graded, ang. gvl
	X	100	21/25/25		11.6	GP/GM		8.0-9.5 GRAVEL/SAND (45% fn-cs gvl, 45% fn-cs sand, 10% silt), brown w/orange-brown mottling, moist, no odor, p. graded, sub-round to sub. ang. gvl + sand
10	X	100	25/35-50/6"		22.4	SP		9.5-10.0 CONTACT w/SAND (100% fn-med sand), red-brown, moist, no odor, p. graded
	X	20	60/6"		12.2	GP/GM		10.0-11.0 CONTACT w/GRAVEL (55% fn-cs gvl, 35% fn-cs sand, 10% silt), brown w/orange-brown mottling, moist, no odor, p. graded, sub-rnd to sub. ang. gvl + sand
	X	15	36-50/6"		5.2	GP		11.0-12.5 GRAVEL (65% fn-cs gvl, 30% fn-cs sand, 5% silt), brown, moist, no odor, p. graded, sub-rnd to sub-ang
15	X	70	32-50/6"		6.5	GW		12.5-14.0 ROCK IN SAMPLER, GRAVEL (65% fn-cs gvl, 30% fn-cs sand, 5% silt), brown, moist, no odor, p. graded
	X	90	46/51/35		12.2	GW		14.0-15.5 GRAVEL (60% fn-cs gvl, 35% fn-cs sand, trace silt), brown, moist, no odor, well graded, sub-rnd to ang gvl
	X	90	35/44/35	RS-090403-01 @ 0845	27.7	GW		15.5-17.0 SAME AS ABOVE, some orange-red mottling
20	X	90	48-50/6"	RS-090403-02 @ 0855	99.8	GW		17.0-18.5 SAME AS ABOVE (60% fn-cs gvl, 35% fn-cs sand, 5% silt), dark brown, wet
								18.5-20.0 SAME AS ABOVE

ATD

H2O @ 0855 RS-090403-03 @ 18.5' bgs ← H2O PUMP @ 0845 RS-090403-04 @ 18.5' bgs

Drilling Company: CASCADE DRILLING
Drilling Crew: BRIAN, FRANK, JASON
Farallon Rep. A. LIGH, E. JOHNSON
Ground Elevation: –
Back Fill Material: PURE GOLD BENTONITE CHIPS

LOG OF WELL RS-3D

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FARALLON CONSULTING
320 3rd Ave. NE, Suite 200
Issaquah, WA 98027

LOG OF WELL RS-3D

(Page 1 of 1)

SITE NAME

CLIENT

PROJECT #

Date/Time Started :
Date/Time Completed :
Total Depth : SEE PAGE ONE
Drilling Method :
Sampler Type :
Depth to water ATD :

RS-3D

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Well: RS-3D
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	90	23-50/6"		6.8	GW		20-21.25 GRAVEL (55% f-c gvl, 40% f-c sand, 5% silt), dry, brown, wet, no odor, well graded, sub-rounded and rounded
						SP		21.25-21.5 CONTACT w/SAND (70% f-med sand, 30% f-c gvl, trace silt), dark brown, moist, no odor, poorly graded, sub-rnd gvl.
25	X	25	50/6"		116	GW		25.0-26.5 GRAVEL (70% f-c gvl, 30% f-c sand, trace silt), dry, brown, wet, no odor, well graded, round to sub-angular gravel
30 10ft	X	80	38-50/6"	RS-09HB-06 @ 31.0' bgs	38.4	GW		30-31.25 SAME AS ABOVE
						GM		31.25-31.5 CONTACT w/GRAVEL (80% f-c gvl, 15% silt, 5% f-c sand), brown w/gray mottling, moist, no odor, poorly graded, sub-rounded gvl, silt smears
	X	80	34/41 50/6"		11.2	GP/GM		31.5-33.0 SAME AS ABOVE, w/gray + red-brown mottling (80% f-c gvl, 10% f-med sand, 10% silt)
	X		35/44/55		12.8	GP		33.0-34.5 SAME AS ABOVE (80% f-c gvl, 15% f-med sand, 5% silt)
35 15ft								
40 20ft								

Depth in Feet: 20, 25, 30 10ft, 35 15ft, 40 20ft

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL RS-3D

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LOG OF WELL RS-3D

(Page 3 of 3)

SITE NAME

CLIENT

PROJECT #

Date/Time Started :
Date/Time Completed : SEE PAGE ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Well: RS-3D
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	95	21/31/35	RS-D-40-43-DZ @ 42.5 bgs	3.4	SP		40-41.5 SAND (95% fn-med. sand, 5% vs gvl, trace silt), brown wet, no odor, p. graded, sub. rounded gravel.
45	X	95	20/21/33		3.3	ML		44.5-46.0 SILT (100% SILT), brown-gray w/ blue-gray mottling, moist, no odor
	X	100	12/14/15		2.3	ML		46.0-46.25 SAME AS ABOVE
						ML		46.25-47.0 SHARP CONTACT w/ SILT (100%), blue-gray, moist, no odor
10								
15								
20								

Well diagram: 0, 5, 10, 15, 20

Drilling Company:
Drilling Crew: SEE PAGE ONE
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL RS-3D

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320 3rd Ave. NE, Suite 200
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LOG OF WELL RS-31

(Page 1 of 2)

SITE NAME HAMILTON/LABREE

CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 9/3/03 0800
Date/Time Completed : 9/3/03
Total Depth : 47.5' bgs
Drilling Method : HSA
Sampler Type : DPM S.S. 18"x2"
Depth to water ATD : 14.6' bgs

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-002

Well: RS-31
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	5/7/7		0.7			5.0-6.5 SILT (100%), blue-gray, moist, no odor w/brown-red mottling, trace organics
	X	100	5/6/8		0.6			6.5-8.0 SAME AS ABOVE, no mottling
	X	100	4/7/8		0.3			8.0-9.0 SAME AS ABOVE
								9.0-9.5 GRADES TO SILT (60% silt, 40% fine sand), brown, v. moist, no odor, trace fn gvl.
10	X	100	4/8/17		0.3			9.5-10.5 GRADES TO SAND (60% fn-med sand, 40% silt) v. moist, no odor, gray-brown, trace gvl.
								10.5-11.0 GRADES TO GRAVEL (50% fn gvl, 30% fn-cs sand, 20% silt), brown, moist, wet, poorly graded
	X	50	28-50/6"		0.6			11.0-11.5 SAME AS ABOVE (70% med-cs gvl, 15 fn-med sand, 15% silt)
	X	40	34-50/5"		0.0			11.5-12.0 CONTACT w/ GRAVEL (70% fn-cs gvl, 30% fn-cs sand), white-red mottling, no odor, v. moist,
15	X	5	39-50/6"	SOIL RS-040303-D1 @ 0900	119			12.0-12.5 CONTACT w/ GRAVEL (70% fn-cs gvl, 15% fn-cs sand, 15% silt), v. moist, red-brown, no odor, p. graded
	X	45	35/39/41		28.7			12.5-14.0 GRAVEL (80% fn-cs gvl, 15% fn-cs sand, 5% silt), red-brown, wet, no odor, well graded
								14.0-15.5 SAND (70% fn-med sand, 30% silt), wet, no odor, brown
	X	25	31-50/6"	SOIL RS-040303-D2 @ 0925	164			15.5-17.0 GRAVEL (85% fn-cs gvl, 15% fn-cs sand, trace silt), brown, v. moist, no odor, p. graded
				14.0 RS-040303-D3 @ 1010 to 18' bgs				17.0-18.5 SAND (75% fn-cs sand, 15% silt, 10% fn gvl), brown, wet, no odor, p. graded
20	X	45	26/31/38		46.2			18.5-19.5 SAND (90% fn-med sand, 10% fn gvl, trace silt), olive brown, moist, no odor, p. graded

ATD ▽

Drilling Company: CASCADE DRILLING
Drilling Crew: BRIAN, FRANK, JASON
Farallon Rep. GREG LISH, B. JOHNSON
Ground Elevation: —
Back Fill Material: PURE GOLD MEDIUM BENTONITE CHIPS

LOG OF WELL RS-31

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LOG OF WELL RS-31

(Page 1 of 1)

SITE NAME

CLIENT

PROJECT #

Date/Time Started : 9/03/03 0800
Date/Time Completed : 9/3/03
Total Depth : 47.5' bgs
Drilling Method : HSA
Sampler Type : DPM
Depth to water ATD : ~14' bgs

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION	Depth in Feet
20	X	60	25/31/38		23.5			19.25-20.0' LANDFILL w/GRAVEL (80% fine-coarse gravel, 15% fine-coarse sand, 5% silt), brown, wet, no odor, mod. gravel, poorly graded. 20.0-21.5' SAME AS ABOVE (70% fine-coarse gravel, 20% fine-coarse sand, 10% silt), sub-round to sub angular.	0
25	X	60	35-50/6"		43.4			25.0-25.5 SAND (95% fine to coarse sand, 5% fine gravel, trace silt), brown, moist, no odor, poorly graded. 25.5-26.0 GRAVEL (90% med. to coarse gravel, 7% fine to coarse, 3% silt), moist, no odor, poorly graded, brown	5
30	X	70	22/27/40	12.05 RS0903 -04 @31.0' bgs	25.9			30.0-30.5 GRAVEL (85% fine to coarse gravel, 15% fine to coarse sand, trace silt), olive brown, wet, no odor, well graded. 30.5-31.5 GRAVEL (70% fine to coarse gravel, 15% fine to coarse sand, 15% silt) olive brown, wet, no odor, poorly graded. 31.5-32.0 SAND (95% fine to coarse sand, 5% fine gravel, trace silt) dark brown, wet, no odor, poorly graded.	10
	X	65	27-50/6"		35.5				
35	X	60	21/27/38		149			32.0-32.5 GRAVEL (70% fine to coarse gravel, 20% fine to coarse sand, 10% silt), brown, wet, no odor, poorly graded. 35.0-35.5 SAND (90% fine to coarse sand, 10% fine gravel, trace silt) dark brown, wet, no odor, poorly graded. 35.5-36.0 GRAVEL (85% gravel, 10% fine to coarse sand, 5% silt) light brown, wet, no odor, poorly graded	15
40									20

Well: Elev.:

Drilling Company: CASCADE DRILLING
Drilling Crew: BRIAN, FRANK, JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: –
Back Fill Material: PURE GOLD BENTONITE CHIPS

LOG OF WELL RS-31

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LOG OF WELL RS-31 3 3

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SITE NAME

CLIENT

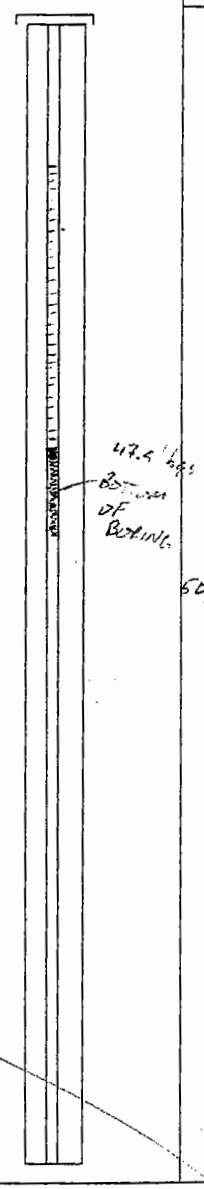
PROJECT #

Date/Time Started :
Date/Time Completed : SEE PAGE ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Well: RS-31
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	70	25/34-50/6"		5.5			40.0-40.5 SAND (100% fine to coarse sand, trace silt) dark brown, wet, no odor, poorly graded. 40.5-41.0 SAND (70% fine to coarse sand, 20% fine to coarse gravel, 5% silt) light brown, wet, no odor, poorly graded
45	X	30	4/6/6"		7.6			45.0-45.5 GRAVEL (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt) light brown, wet, no odor, poorly graded
	X	90	4/12/22		0			46.0-46.5 GRAVEL (60% fine-coarse gravel, 40% sand, trace silt), olive grey, wet, no odor, poorly graded. 46.5-46.75 CONTACT w/SILT (100% silt, trace fine gravel), red-brown, moist, no odor. 46.75-47.5 GRADES TO SILT (100% silt) blue-grey, moist, no odor
50 BS 10								
55 BS 15								
20								



Depth in Feet: 40, 45, 50/10, 15, 20

Drilling Company: SEE PAGE ONE
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL RS-31

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LOG OF WELL RS-33

(Page 1 of 1)

SITE NAME

CLIENT BOEING

PROJECT # 734-002

Date/Time Started : 9/4/03 15:45
Date/Time Completed : 9/5/03 10:05
Total Depth : 45.5' bgs
Drilling Method : HSA
Sampler Type : DPM SS. 18" x 2"
Depth to water ATD : 17' bgs

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	12/13/27			ML		5.0-6.5 SILT (100%), lt. brown, moist, no odor, trace organics.
	X	95	5/12/25			ML		6.5-7.5 SILT (100%), blue-gray, moist, no odor
						GM		7.5-8.0 GRADES TO GRAVEL (70% fn-cs gvl, 25% silt, 5% fn-med sand), blue-gray w/ yellow-brown mottling, moist, no odor, p. graded
	X	95	2/1/35			GM		8.0-8.5 SAME AS ABOVE, sub-rnd to ang. gvl.
						GP/GM		8.5-9.5 GRADES TO SAME AS ABOVE (70% fn-cs gvl, 20% fn-med sand, 10% silt)
10	X	5	46-54/"			GP		9.5-11.0 ROCK IN SAMPLER, GRAVEL (60% fn-cs gvl, 35% fn-med sand, 5% silt), brown, moist, no odor, p. graded, subround to ang. gvl.
	X	75	27/25/35			GM		11.0-12.5 GRAVEL (60% fn-cs gvl, 30% silt, 15% fn-cs sand), olive brown, wet, no odor, p. graded, sub round gvl.
	X	15	23/22/27			GW/GM		12.5-14.0 GRAVEL (75% fn-cs gvl, 15% fn-cs sand, 10% silt), olive brown, no odor, wet, w. graded
15	X	50	41-50/6"			GW/GM		14.0-15.5 SAME AS ABOVE, LARGE ROCK IN SAMPLER
	X	50	75-50/6"					15.5-17.0 LARGE ROCK IN SAMPLER (SHATTERED) SAND (75% fn-med sand, 15% fn-gvl, 10% silt) brown, moist, no odor, p. graded.
	X	40	38-50/6"	DB20 RS-CASC @ 14.5'				17.0-18.5 SAND (60% fn-med sand, 15% fn-gvl, 25% silt), orange-brown, wet, no odor, p. graded
	X		27/40-50/6"	DB21 RS-CASC @ 18.5'				18.5-19.0 SAME AS ABOVE
20								19.0-20.0 CONTACT w/ GRAVEL (80% fn-cs gvl, 10% fn-cs sand, 10% silt), olive brown, wet, no odor, p. graded

Well: Elev.:

Drilling Company: CASCADE
Drilling Crew: BRIAN, FRANK, JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: -
Back Fill Material: MEDIUM BENTONITE CHIPS

LOG OF WELL RS-33

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LOG OF WELL RS-33

(Page 1 of 2) GL

SITE NAME

CLIENT

PROJECT #

Date/Time Started :
Date/Time Completed : SEE PAGE ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001 GL 2

Well: RS-33
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	5	21/32 -50/3"			SP		20-21.5 SAND (95% fine sand, 5% fines, trace silt), brown, wet, no odor, p. graded.
25	X	45	34 -50/6"			SP		25-26.5 GRAVEL (90% fine sand, 10% fine sand, trace silt), olive brown, wet, nothing, wet, no odor, p. graded.
30 GL 10	X	80	33 50/5"	DPSS RS-DPD-SB1 -03		SP		30-31.5 SAND (60% fine sand, 40% fine-coarse sand, trace silt), dk brown, wet, no odor, p. graded.
	X	5	100/5"			GM		31.5-32.0 GRAVEL (55% fine-coarse sand, 25% fine-coarse sand, 20% silt), brown, wet, no odor, p. graded, [illegible]
	X	60	39/ -50/4"			SP		32.0-32.5 SAND (90% coarse sand, 10% fine sand, trace silt), dk brown, wet, no odor, p. graded
						ML		32.5-33.5 CONTACT w/ SILT (70% silt, 25% fine sand, 5% fine-coarse sand), olive brown, wet, no odor, subrnd, p. graded
35 GL 15	X	70	38 -50/6"			SP		33.0-35.5 SAND (95% med-coarse sand, 5% fine sand), brown-black, wet, no odor, p. graded
						GM		35.5-36.5 CONTACT w/ GRAVEL (80% fine sand, 15% silt, 5% fine-coarse sand), brown/orange cobbles, moist, no odor, p. graded
40 GL 20								

Well diagram: 0 – 5 – 10 – 15 – 20

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

SEE PAGE ONE

LOG OF WELL RS-33

(Page 1 of 2) GL

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PID NOT WORKING

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LOG OF WELL RS-37

(Page 1 of 1)

SITE NAME

CLIENT

PROJECT #

Date/Time Started :
Date/Time Completed : SEE PAGE ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

RS-37

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	75	40-5½"			GW		40-41.5 GRAVEL (80% fine gvl, 20% fine sand, 5% silt), olive brown, wet, no odor, w graded sub-round-round gravel.
45	X	100	14/18/25	RS-04		GW		44.0-44.25 GRAVEL (80% fine gvl, 20% fine sand, trace silt), brown, wet, no odor, w graded sub-round gravel. 44.25-45.5 CONTACT w/ SILT (100%), brown-brown w/blue-gray mottling, moist, no odor, grades to blue-gray silt @ 45.25
50								
15								
20								

Well: Elev.:

Depth in Feet: 0, 5, 10, 15, 20

Drilling Company: SEE PAGE ONE
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL RS-33

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LOG OF WELL

(Page 1 of 1)

SITE NAME BREEN

CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 8/25/03 11:00
Date/Time Completed : 8/25/03 15:00
Total Depth : 39' bgs
Drilling Method : HSA
Sampler Type : 18" x 2" DPM
Depth to water ATD : 11.0'

RS-41
HAMILTON/LABREE ROAD
GW CONTAMINATION SHELFLEND SITE
FARALLON PN: 734-002

Well: RS-41
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	4/6/9		4.2	ML		(90%, 5%, 5%) SILT, TRACE fine sand, trace fine gravel, blue-gray, moist, no odor,
	X	100	5/6/11		4.7	ML		SILT, trace fine sand, trace fine gravel, (90%, 5%, 5%), blue-gray, moist, no odor
	X	100	14/32/34		4.1	ML / GM		~8.5' SILT (SAME AS ABOVE) GRADES TO GRAVEL w/sand w/silt (60%, 15%, 25%), fine-coarse gravel, fine-coarse sand, dark brown, moist, no odor
10	X	100	24/25/22		4.2			ANGULAR gravel
	X	100	22/34/39	RS-082503-1 @12.0'	4.1	GM		9.5-11.0 GRAVEL, w/sand, w/silt (60%, 25%, 15%) fn-cs gravel, fine-cs sand, gray-brown, wet, sand gravel, no odor
	X	100	27/32/35		4.3	GM		11.0-12.5 GRAVEL w/sand w/silt (50%, 35%, 15%) fn-cs gravel, fn-cs sand, gray-brown, wet, sand gravel, no odor
						GM		12.5-14.0 SAME AS ABOVE
15	X	100	14/22/38		4.2	GW		GRAVEL (70%, 25 fn-cs sand, 5% silt) w/sand, trace silt, fn-cs gravel, gray-brown, wet, no odor, sand gravel.
	X	90	21-50/6"		4.5	ML		15.5-15.75 SHARP CONTACT w/ SILT (60%, 20% fn sand, 20 cs gravel), red-brown, no odor, wet,
	X	100	19/25/31		4.6	GW		16.0-17.0 GRAVEL (80% fn-cs, 15% sand fn-cs, 5% silt) reddish-brown, wet, no odor, trace cobble, sand gravel
						GM		17.0-18.5 GRAVEL fn-cs (65% grvl, 20% silt, 15% fn-cs sand) red-dark brown, wet, sand gravel
20	X	100	15/14/24		4.4	GM		18.5-20.0 SHARP CONTACT w/ GRAVEL (80% grvl, 10% fn-cs sand, 10% silt) blue-grey, no odor, wet, sand gravel.

Depth in Feet: 0, 5, 10, 15, 20

ATD ▽

15.75' fn-cs sand 0.25', black material

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELI, JASON
Farallon Rep. GREG LISH, B. JOHNSON
Ground Elevation: –
Back Fill Material: PURE GOLD BENTONITE CHIPS

LOG OF WELL

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LOG OF WELL

(Page 1 of 1)

SITE NAME

CLIENT

PROJECT #

Date/Time Started : 8/25/03 11:00
Date/Time Completed 8/25/03 15:00
Total Depth : 39' bgs
Drilling Method : HSA
Sampler Type : D+M 18"x2"
Depth to water ATD : ~11.0 bgs

RS-41

Hamilton/Labree Roads
Groundwater Contamination
Superfund Site
Farallon PN: 734-001

Well: RS-41
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
2.5	X	90	40-50/6"		4.2	GW		2.5-26.5' GRAVEL (85% gravel fn-cs 10% fn-cs sand 5% silt), dkl brown, wet, no odor, rnd gravel.
	X	90	36-50/6"		4.1	GW		26.5-28' GRAVEL (85% fn-cs grvl, 10% fn-cs sand 5% silt) dark brown w/ reddish mottling, wet, no odor, rnd-sub-ang. grvl.
	X	70	20-50/6"	RS-082503-2 @28.5	4.1	SP		28-29.5' CONTACT w/ SAND (50% md-cs sand, 45% fn-cs gravel, 5% silt), brown-gray, md + wet, no odor, rnd-ang grvl + sand.
30						SP		29.5-30.0 SAME AS ABOVE
	X	70	36-50/6"		4.3	GM		30.0-31.0 GRAVEL (75% cs grvl, 15% silt, 10% fn sand) dkl brown, wet, no odor, rnd-sub-ang grvl.
	X	50	41-50/6"		4.5	SP		31.0-32.5' SAND md-cs (50% SAND, 45% grvl fn-cs, 5% silt) dk brown, wet, no odor, rnd-sub ang. grvl + sand.
35	X	70	23-50/4"	RS-082503-03 @36.5' bgs	4.2	GP/GM		35-36.5 GRAVEL fn (50% grvl, 40% md-cs sand, 10% silt) brown, wet, no odor, rnd-sub round grvl + sand
	X	100	24/29/42		4.0	ML		37.5-39.0 SILT (100%) + blue-gray + no odor, moist
40								

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELY, + JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: —
Back Fill Material: PURE GOLD BENTONITE CHIPS.

LOG OF WELL

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LOG OF WELL

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RS-43

SITE NAME

CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 3/27/03 0815
Date/Time Completed :
Total Depth :
Drilling Method : HSA
Sampler Type : DPM 18"x2" SPLIT SPOON
Depth to water ATD : -11.0'

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-001

Well: RS-43
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	7/8/9		2.0	ML		5.0-6.5' SILT (90% silt, 10% fn sand), grey w/red-brown mottling, moist, no odor, trace organics
	X	100	3/4/7		1.5	ML		6.5-8.0' SAME AS ABOVE
	X	100	4/6/7		1.5	ML		8.0-9.5 SAME AS ABOVE
10	X	100	3/4/5		2.4	ML		9.5-11.0 SAME AS ABOVE GRADES TO SILT (85% silt, 10% fn-cs sand, 5% fn gravel), grey-brown, moist, no odor, sub-rnd sand to gvl.
	X	95	6/14/25		2.3	ML		11.0-12.0 SILT (80% silt, 20% fn sand), grey, wet, no odor
	X	85	23/35/43	0930 RS-0812-01 @ 14.0	3.1	SW		12.0-12.5 CONTACT w/SAND (85% fn-cs sand, 10% fn gvl, 5% silt), wet, dk. grey, no odor, sub-rnd sand + gvl.
						SW		12.5-13.0 SAME AS ABOVE
15	X	75	4/13/41		2.4	GW		13.0-14.0 GRADES TO GRAVEL (80% fn-cs gvl, 15% fn-cs sand, 5% silt), dk grey + wet, no odor, sub-rnd to subang gvl + sand, well graded
	X	95	26/30/34		10.8	GW		14.0-15.5 GRAVEL (85% fn-cs gvl, 10% fn-cs sand, 5% silt), gray-brown, wet, no odor, sub-rnd to subang gvl + sand, well graded
	X	85	26/30-50/3"		2.6	SP		15.5-15.75 SAND (100% fn-med sand) dk.gray, wet, no odor, poorly graded
						GW		15.75-17.0 GRAVEL (85% fn-cs gvl, 15% sand fn-cs, trace silt), gray-brown, wet, no odor, sub-rnd to subang.
20	X	70	16/30/36		2.3	GW		17.0-18.5 GRAVEL (75% fn-cs gvl, 25% fn-cs sand, trace silt), grey + wet, no odor, sub-round to subang. gravel & sand, well graded

Well: RS-43
Elev.:

Depth in Feet: 0, 5, 10 (ATD), 15, 20

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELY, JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: —
Back Fill Material: BENTONITE

LOG OF WELL

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LOG OF WELL RS-43

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RS-43

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-001

SITE NAME

CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 8/27/03 0815
Date/Time Completed : 8/27/03 1400
Total Depth :
Drilling Method : HSA
Sampler Type : Dam 18"x2"
Depth to water ATD : ~11.0 bgs

Well: RS-43
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	85	22-50/6"		1.3	GW		18.5-20.0 GRAVEL (70% fn-cs grvl, 30% fn-cs sand, trace silt), gray, wet, no odor, sub-rounded to sub-angular gravel + sand, well graded
	X	80	41-50/3"	1150 RS-DB2703-02 @22.5' bgs	14.5	SP		20.0-20.5 CONTACT w/ SAND (100% fn-med sand), gray-black, wet, no odor, poorly graded
						GW		20.5-21.5 GRADES TO GRAVEL (60% fn-cs grvl, 40% fn-cs sand, trace silt), gray-black, wet, no odor, sub-rounded grvl + sand, well graded gravel + sand
	X	85	45-50/4"		6.7			
						GW		21.5-22.5 SAME AS ABOVE
25	X	5%	100/3"		0.6	ML		22.5-23.0 CONTACT w/ SILT (80% silt, 20% fn-cs sand) gray, wet, no odor, sub-med sand
						ML		23.0-24.5 SILT (90% silt, 10% fn-med sand) gray, wet, no odor
						ML		24.5-24.7 SAME AS ABOVE, ROCK IN SAMPLER, LITTLE RECOVERY
	X	70	41-50/5"		0.4	GP/GW		27.5-28.5 GRAVEL (70% cs grvl, 20% fn-med sand, 10% silt), gray-green mixed silt nodules, wet, no odor, rounded to subang gravel, poorly graded
30	X	60	26-50/5"		0.5	GW		29.0-30.5 GRAVEL (85% fn-cs grvl, 10% fn-cs sand, 5% silt) dk. gray, wet, no odor, sub rnd to ang. grvl.
	X	60	35-50/4"		0.0	GW		30.5-32.0 SAME AS ABOVE (80% grvl, 15% sand, 5% silt)
	X	50	37-50/4"		0.0	GW		32.0-33.5 GRAVEL (95% fn-cs gravel, 4% fn-med sand, trace silt), dark grey, wet, no odor, sub-round to sub-ang grvl, well graded grvl
35	X	60	35-50/4"	1430 RS-DB2704-03 @35.0'	0.0	SP		33.5-34.0 CONTACT w/ SAND (100% fn-med sand), gray-black, wet, no odor, poorly graded
	X	70	40-50/6		0.0	GW		34.0-35.0 GRADES TO GRAVEL (70% fn-cs grvl, 25% fn-cs sand, 5% silt), gray-black, wet, no odor, sub-round to sub-ang gravel + sand, well graded
						SP		35.0-35.5 CONTACT w/ SAND (100% fn-med sand), gray-black, wet, no odor, poorly graded
	X	75	2/3-50/3"		0.0	GW		35.5-36.5 GRADES TO GRAVEL (60% fn-cs grvl, 35% fn-cs sand, 5% silt), gray-black, wet, no odor, sub-round to sub-ang gravel + sand
	X	100	10/14/19		0.0	GW		36.5-38.0 SAME AS ABOVE
40						ML		38.0 CONTACT w/ BLUE-GREY SILT (100%) moist, no odor

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELY, JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation: -
Back Fill Material: BENTONITE

LOG OF WELL

(Page 1 of 1)

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LOG OF BORING MW-33

(Page 1 of 2)

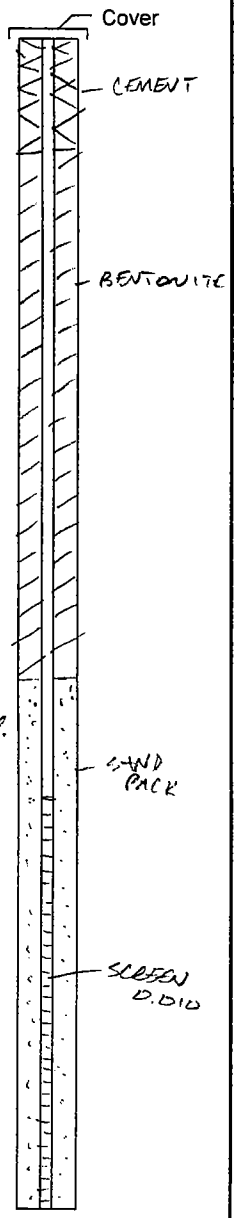
SITE NAME
CLIENT SC-BESN
CITY, STATE CHEHALIS, WA
Farallon PN: 734-002
Logged By: G. LISH

Date/Time Started : 4/12/04 0940
Date/Time Completed : 4/12/04
Equipment : CME 75
Drilling Company : CASCADE
Drilling Forman : BRIAN GOSE

Drilling Method : HSA
Sampler Type : S.S. 18"
Depth Of Water ATD : 12.0
Total Depth : 25.0'

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
	X	95	15/20/18	MW33-7.0-8.5	118	ML		7.0-7.5 SILT, trace gravel (100% silt), gray w/red mottling, sl. moist, no odor,
MW-041204-01 1100	X	95	10/15/25	8.5-10.0	212	ML		7.5-8.5 CONTACT w/ SILT w/gravel (70% silt, 30% fn-cs gvl), gray w/red-brown mottling, sl. moist, no odor
10						ML		8.5-9.0 SAME AS ABOVE
	X	90	10/15/16	10.0-11.5	24.1	ML		9.0-10.0 GRADES TO SILT w/gravel, trace sand (65% silt, 30% fn-cs gvl, 5% fn-med sand), gray w/red-orange mottling, sl. moist, no odor
▽	X	35	16/16/25	11.5-13.0	54.1	ML		10.0-10.5 SILT, trace sand (95% silt, 5% fn-med. sand), brown, sl. moist, no odor,
						SM		10.5-11.5 CONTACT w/ silty gravelly SAND (40% fn-cs sand, 30% fn-cs gvl, 30% silt), brown, moist, no odor, well graded.
						SM		11.5-12.0 SAME AS ABOVE
15						GM		12.0-13.0 CONTACT w/ silty GRAVEL, minor sand (65% fn-cs gvl, 25% silt, 10% fn-cs sand), light brown, wet, no odor, well graded.
20								

Well: MW-33
Elev.:



WELL INFORMATION
Cover: ABOVE GROUND MONUMENT Grout: —
Casing: 2" PVC Seal: BENTONITE - MEDIUM CHIPS
Screen: 0.010 Sand Pack: LAPIS LUSTRE #2/12

SCREENED FROM 13.0-25.0' bgs w/0.010-slot

LOG OF BORING MW-33

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LOG OF BORING MW-33

(Page 2 of 2)

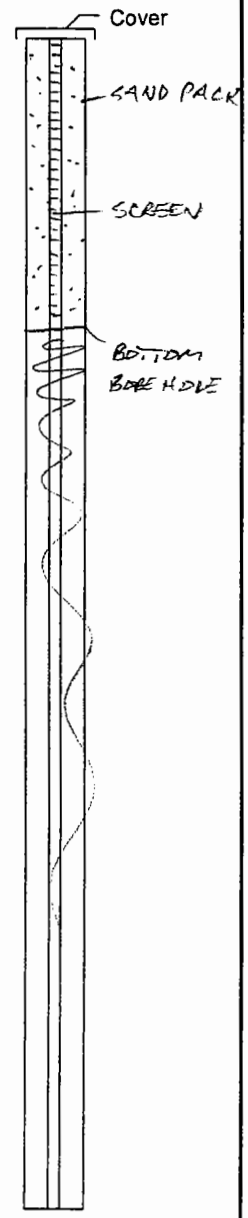
SITE NAME HAMILTON-LADDIE
CLIENT S.C. BREEN
CITY, STATE CHEHALIS, WA
Farallon PN: 734-002
Logged By: G. LISH

Date/Time Started : SEE PAGE ONE
Date/Time Completed :
Equipment :
Drilling Company :
Drilling Forman :

Drilling Method : HSA
Sampler Type :
Depth Of Water ATD : 12.0'
Total Depth : 25.0

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
2 0								NOT SAMPLED/LOGGED
2 5								
10								
15								
20								

Well: MW-33
Elev.:



WELL INFORMATION

Cover: Grout:
Casing: Seal:
Screen: Sand Pack:

LOG OF BORING MW-33

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LOG OF WELL MW-34

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SITE NAME HAMILTON-LABREE

CLIENT S.C. BREEN

PROJECT # 734-002

Date/Time Started :
Date/Time Completed : SEE PAGE
Total Depth : ONE
Drilling Method :
Sampler Type :
Depth to water ATD :

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20								NOT LOGGED/SAMPLED
25								
30 ~~10~~								
35 ~~15~~								
40 ~~20~~								

Well: MW-34
Elev.:

Drilling Company: SEE PAGE ONE
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL MW-34

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LOG OF WELL MW-34

(Page 1 of 1½)

SITE NAME HAMILTON-LEBOW

CLIENT S.C. BREEN

PROJECT # 734-002

Date/Time Started : 4/12/04 1320
Date/Time Completed : 4/12/04 1735
Total Depth : 47.0
Drilling Method : HSA
Sampler Type : 18" S.S.
Depth to water ATD : ~15.5' bgs

Well: MW-34
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
	X	100	3/5/7	8.0-9.5	4.3	ML		8.0-9.5 SILT (100% silt, trace cs gravel), black-gray, sl. moist, no odor
10	X	95	0/14/23	9.5-11.0	5.2	ML		9.5-10.5 SAME AS ABOVE, brownish mottling. 10.5-11.0 CONTACT w/SILT, minor gravel, minor sand (70% silt, 15% fn-cs angular gravel, 15% fn-med sand), sl. moist, gray w/red-orange mottling, no odor
	X	60	18-50/6"	11.0-12.0	10.5	ML		11.0-11.5 SILT, trace gravel (95% silt, 5% cs gravel), sl. moist, brown, no odor
	X	40	33-50/6"	12.5-13.5	9.5	SM		11.5-12.0 CONTACT w/SAND, with silt, minor gravel (65% fn-cs sand, 20% silt, 15% fn-cs gravel), brown-gray w/red mottling, moist, no odor
	X	30	105/6"	14.0-14.5	10.4	ML		12.5-13 SILT (100%) BROWN, MOIST, NO ODOR
15	X	15	33/21/16	15-16.5	270	GW-GM		13-13.5 CONTACT w/GRAVEL, minor silt, minor sand, (80% cs angular gravel, 10% silt, 10% fn-cs sand), sl. moist, grey-brown, no odor, p. sorted. 14-14.5 SILT, minor gravel (85% silt, 15% cs gravel), moist, brown, no odor. 15-16.5 GRAVEL, minor silt, minor sand (75% fn-cs gravel, 15% sand, 10% fn-cs gravel), wet, light brown, no odor, v. sorted
20								

Drilling Company: CASCADE
Drilling Crew: BRIAN, FRANK, JASON
Farallon Rep. G. LISH
Ground Elevation: —
Back Fill Material: #2/12 SAND (8.5-47.0' bgs)
MEDIUM BENTONITE CHIPS (2-8.5' bgs)
CEMENT (0-2.0' bgs)
FLUSH GRADE MONUMENT

PVC
4" 0.010-slot SCREEN (10.5-45.5' bgs)
4" SCHEDULE 40 PVC BLANK (0.0-10.5)

LOG OF WELL MW-34

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LOG OF WELL MW-34

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SITE NAME ~~HAMILTON~~ - LABREE

CLIENT S.C. BREEN

PROJECT # 734-002

Date/Time Started :
Date/Time Completed : SEE PAGE ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Well: MW-34
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40								
	X	20	24/ 10 6/6"	44-45	>2000 MOISTURE	SP		44-45.0 SAND w/gravel, trace silt (80% fn-cs sand, 20% fn-cs gravel, <5% silt), wet, brown, no odor, f. graded.
45	X	15	18-50/6"	45-46.0	>2000	SP		45.0-46.0 SAME AS ABOVE
						SP		46.0-46.5 SAME AS ABOVE
	X	60		46-47	–	ML		46.5-47.0 CONTACT w/ SILT (100% silt) grey-brown, no odor, moist.
~~50~~ 10								
~~55~~ 15								
20								

Depth in Feet: 40, 45, ~~50~~ 10, ~~55~~ 15, 20

Drilling Company:
Drilling Crew: SEE PAGE ONE
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL MW-34

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RS-42

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon PN: 734-002 hl 2

SITE NAME

CLIENT BREEN

PROJECT # 734-002

Date/Time Started : 8/24/03 0900
Date/Time Completed :
Total Depth : 36.0' bgs
Drilling Method : HSA
Sampler Type : DPM 18"x2"
Depth to water ATD : 11.0

5.35'

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	4/5/7		0.5	ML		5.0-6.5 SILT (85%, 15% fn sand) trace organics, blue-gray w/red-brown mottling, moist, no odor
	X	100	3/4/6		1.2	ML		6.5-8.0 SILT (90% 10% fn sand) trace org., blue-gray w/red-brown mottling, moist, no odor
	X	100	3/3/6		1.4	ML		8.0-9.5 SAME AS ABOVE
10	X	100	5/5/4		0.4	ML		9.5-11.0 SAME AS ABOVE
	X	100	4/25/34		0.4	ML		11.0-12.0 SAME AS ABOVE, wet, no mottling, blue-gray
						GM		12.0-12.5 CONTACT w/GRAVEL (85% fn-cs gvl, 15% silt, 10% fn-med sand), dk gray, wet, no odor, sub-rnd to sub-ang gvl
	X	100	27/34/41	1030 RS-DB2003-01 @ 13.5	0.1	GW		12.5-14.0 GRAVEL (80% fn-cs gvl, 15% fn-cs sand, 5% silt), gray w/some red-brown mottling, wet, no odor, sub-rnd to ang. gvl + sand
	X		11-50/6"	1100 RS-DB2003-02 @ 13.5	0.8	GW		14.0-14.25 SAME AS ABOVE
15						SW		14.25-14.75 CONTACT w/SAND (95% fn-cs sand, 5% silt), dk gray, wet, no odor, sub-rnd to ang. sand
	X	85	27-50/6"		1.0	GW		14.75-15.00 GRADES TO GRAVEL (50% fn-cs gvl, 45% fn-cs sand, 5% silt), gray, wet, no odor, sub-rnd to sub-ang gravel + sand
	X	70	22/36-50/4"		0.9	GM		15.5-16.0 GRAVEL (60% cs gvl, 35% silt, 5% fn sand) olive brown, wet, no odor, sub-ang gvl
						SW		16.0-16.5 SAME SAND AS @ 14.75 - (CONTACT w/)
20	X	~~70~~ hl 40	38-50/4"		0.6	GW/GM		16.5-17.0 CONTACT w/ GRAVEL (75% fn-cs gvl, 15% fn-cs sand, 10% silt) olive brown, wet, no odor, sub-rnd to sub-ang gvl.

Well: Elev.:

Depth in Feet: 0, 5, 10 (ATD 11), 15, 20

Drilling Company: LASCADE
Drilling Crew: BRIAN, ELY, JASON
Farallon Rep. L. LISH, B. JOHNSON
Ground Elevation: -
Back Fill Material: BENTONITE

LOG OF WELL
RS-42
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LOG OF ~~WELL~~ BORING

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RS-42

Date/Time Started : 8/26/07 0900
Date/Time Completed :
Total Depth : 36.0' bgs
Drilling Method : HSA
Sampler Type : DPM 18" x 2"
Depth to water ATD : ~11.0'

SITE NAME
CLIENT BREEN
PROJECT # 734-002

Hamilton/Labree Roads Groundwater Contamination Superfund Site
Farallon No.: 734-002

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20						GM		19.0-18.5 GRAVEL (75% c-f gvl, 20% silt, 5% m-c sand) olive brown w/red-brown mottling, wet, no odor, sub-round gvl
						GM		18.5-20.0 GRAVEL (80% f-c gvl, 15% silt, 5% f-med. sand), olive-brown, wet, no odor, sub-round to angular gvl.
25	X	80	33-50/5"		0.0	GW/GM		25.0-25.5 GRAVEL (55% f-c gvl, 35% f-c sand, 10% silt), olive-brown, wet, no odor, sub-round gvl + sand
						SP		25.5-26.5 CONTACT w/ SAND (100% f-med), brown, wet, no odor, sub-round-sub angular
	X	65	40-50/6"		0.0	SP		26.5-28.0 SAME AS ABOVE GRADES TO GRAVEL
						GW		(80% f-c gvl, 15% f-c sand, 5% silt), olive-brown w/red mottling, wet, no odor, sub-round gravel
	X	80	37-50/6"	1235 RS-042607-03 @ 31.0	0.0	GW		28.0-29.5 SAME AS GRAVEL ABOVE
30 ~~10~~	X	90	31-50/6"		0.0	GW		29.5-31.0 SAME AS ABOVE (75% f-c gvl, 20% f-c sand 5% silt).
	X	100	28/35-50/3"		0.0	SW		31.0-31.5 SAND (85% f-c sand, 10% f-c gvl, 5% silt), brown-dk brown, wet, no odor
						GW/GM		31.5-32.5 GRADES TO GRAVEL (60% f-c gvl, 30% f-c sand, 10% silt), brown w/reddish orange mottling, wet, no odor, sub-round to sub angular gvl + sand.
35 ~~15~~	X	100	18/25/31	1425 RS-082607-04 @ 34.5	0.0	GW/GM		34.5-34.75 SAME AS ABOVE
						ML		34.75-36.0 CONTACT w/ SILT (100%), BLUE-GREY, wet, no odor
20								

Well: Elev.:

Depth in Feet: 20, 25, 30 ~~10~~, 35 ~~15~~, 40 ~~20~~

Drilling Company: CASCADE
Drilling Crew: BRIAN, ELY, JASON
Farallon Rep. G. LISH, B. JOHNSON
Ground Elevation:
Back Fill Material: BENTONITE

LOG OF WELL
RS-42 (Page 2 of 2)

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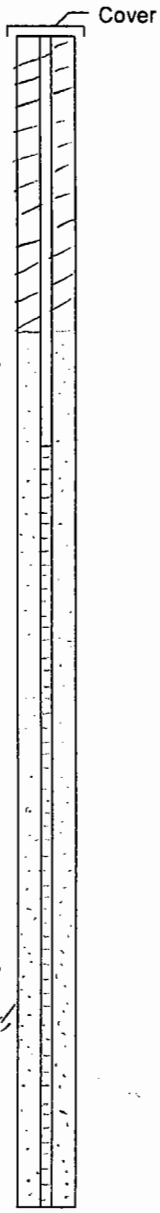
LOG OF BORING MW- BP-4

(Page ~~1 of 2~~ 2 of 3)

SITE NAME	Date/Time Started : 8/28/03 1300	Drilling Method	: HSA
CLIENT	Date/Time Completed :	Sampler Type	: DM SS. 18"x2"
CITY, STATE	Equipment : CME 75	Depth Of Water ATD	: 14'
Farallon PN: 734-002	Drilling Company : CASCADE	Total Depth	~: 45.0' bgs
Logged By: GREG LISH	Drilling Forman : BRIAN		

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	100	18-50/5"		0.8	SW		20-21.5 SAND (95% fn-med sand, 5% fn-cs gvl, trace silt) dark brown, v. moist, no odor, well graded sand.
25	X	110	17/22/31		1.2	SW SW		25.0-26.0 ~~SAND (ML~~ SAME AS ABOVE 26.0-26.5 GRADES TO SAND (80% fn-med sand, 10% fn gvl, 10% silt), brown, wet, no odor, well graded sand
30 ~~10~~	X	55	28-50/6"		2.3	GW		30-31.5 GRAVEL (65% fn-cs gvl, 30% fn-cs sand, 5% silt), brown, wet, no odor, well graded sand + gvl
35 ~~15~~	X	65	31-50/6"		0.8	GW ML GW		35.0-35.5 SAME AS ABOVE 35.5-36.2 CONTACT w/ SILT (100%), red-brown, moist, no odor. 36.2-36.5 CONTACT w/ GRAVEL (75% fn-cs gvl, 20% fn-cs sand, 5% silt), brown w/red mottling, moist, no odor, well graded sand + gvl.
20								

Well: MW-
Elev.:



FLUSH MOUNT WELL INFORMATION
Cover: 14" DIA. H.D. Grout: CONCRETE 0'-2' bgs
Casing: 4" PVC Seal: BENTONITE 2'-25' bgs
Screen: 0.010 Sand Pack: LAPIS LUSTRE #2/12 MONTEREY SAND 25'-45'
27'-42' bgs

LOG OF BORING MW-

(Page ~~1 of 2~~ 2 of 3)

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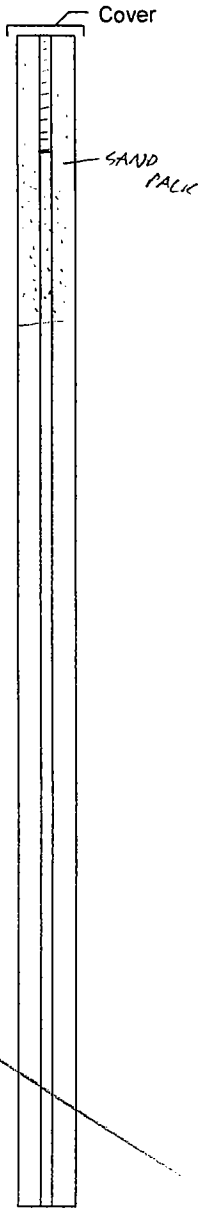
LOG OF BORING MW- BP-4

(Page 1 of 2)

SITE NAME CLIENT CITY, STATE	Date/Time Started :		Drilling Method :
	Date/Time Completed :	SEE PAGE ONE	Sampler Type :
	Equipment :		Depth Of Water ATD :
Farallon PN:	Drilling Company :		Total Depth :
Logged By:	Drilling Forman :		

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	20	33-50/3"		0.4	SP		40-41.5 SAND (90% sand fn-cs, 5% fn gvl, 5% silt), red-brown, wet, no odor, sand grades from fn sand to cs sand @ bottom.
45	X		15/34/35			ML		43.5-45.0 SILT (100%), red-brown grading to blue-grey, moist, no odor.
10								Bentonite Seal
15								
20								

Well: MW- BP-4
Elev.:



WELL INFORMATION

Cover:	Grout:	SEE PAGE TWO
Casing:	Seal:	
Screen:	Sand Pack:	

LOG OF BORING MW- BP-4

(Page 1 of 2)

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LOG OF ~~WELL~~ RS-46

(Page 1 of ~~X~~)

SITE NAME HAMILTON-LABREE ROAD

CLIENT S.L. BREEN

PROJECT # 734-002

Date/Time Started : 4/13/04 0750
Date/Time Completed :
Total Depth :
Drilling Method : HSA
Sampler Type : 18" S.S.
Depth to water ATD : ~15

Well: RS-46
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5								
DB09	X	100	8/12/18	RS-041304-D1	>2000	ML		8.0-9.5 SILT (100%), sl. moist, blue-grey, no odor
10 DB13	X	85	32-50/6"	RS-041304-D2	>2000	GM		9.5-11 silty GRAVEL, minor sand (55% fn-cs gvl, 35% silt, 10% fn-med sand), blue-grey w/reddish-orange + brown mottling, sl. moist, no odor, p. graded
DB17 (1)	X	10	39-50/4"	RS-041304-D3	>2000	SM		11-12.5 silty SAND, minor gvl (55% fn-med sand, 40% silt, 5% cs gvl), moist, brown, no odor, p. graded
NA	X	0	37/50/0	NA	>2000			12.5-14.0 NO RECOVERY
DB25 ▽ 15	X	35	10/25/21	RS-041304-D4	>2000	GM		14.0-15.5 GRAVEL w/sand, minor silt (65% fn-cs gvl, 20% fn-cs sand, 15% silt), wet, light brown, no odor, w. graded
DB26	X	20	100/6"	RS-041304-D5	>2000	GM		15.5-17.0 SAME AS ABOVE
NA	X	0	100/5"	NA	>2000			17-18.5 NO RECOVERY
NA	X	0	27-50/6"	NA	>2000			18.5-20.0 NO RECOVERY
20								

S: 15-20' NOT SAMPLED DRY

Drilling Company: CASCADE
Drilling Crew: BRIAN, FRANK, JASON
Farallon Rep. G. LISH, J. KELLER
Ground Elevation:
Back Fill Material:

LOG OF ~~WELL~~ RS-46

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LOG OF WELL RS-46

(Page 2 of 1)

SITE NAME HAMILTON - LAMBERT ROADS

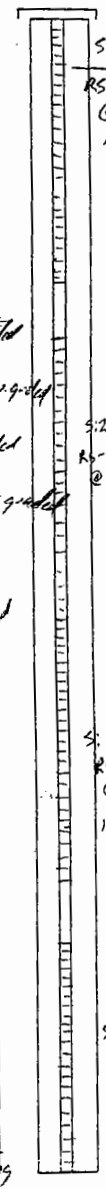
CLIENT S.L. BREEN

PROJECT # 734-002

Date/Time Started : SEE PAGE ONE
Date/Time Completed :
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Well: RS-46
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20								
0918 (1)	X	15	30/20/30	-06	>2000	GM		SAME AS ABOVE (14-15.5)
0923	X	20	35-50/4"	-07	>2000	SM		21.5-23.0 silty SAND, minor gravel (55% fn-cs sand, 35% silt, 10% fn-cs gravel), light brown, wet, no odor, p. graded, cobble in sampler
0930 0945	X	55	40/47-50/5"	-08 -09	>2000	SM		23.0-24.5 SAND w/silt, w/gravel (60% fn-cs sand, 30% silt, 10% fn-cs gravel), wet, brown-grey, no odor, p. graded, cobbles
25 1019	X	80	18-50/6"	-11	>2000	SP		24.5-25 SAND, trace gravel, trace silt (90% fn-med sand, 5% cs gravel, 5% silt), wet, brown, no odor, p. graded
1025	X	10	70/6"	TOO LITTLE RECOVERY	>2000	GM		25-25.5 CONTACT w/sandy GRAVEL, minor silt (55% fn-cs gravel, 35% fn-cs sand, 10% silt), wet, light brown, no odor, w. graded
						GM		25.5-26.0 CONTACT w/silty sandy GRAVEL (40% fn-cs gravel, 10% fn-med sand, 30% silt), moist, brown, no odor, p. graded
1032	X	40	85/6"	-12	>2000	GW		26-27.5 GRAVEL, minor sand, trace silt (85% fn-cs gravel, 10% fn-cs sand, 5% silt), wet, light brown, no odor, w. graded
1040	X	40	100/6"	-13	>2000	SP		27.5-28.0 SAND, trace gravel, trace silt (90% fn-med sand, 5% fn gravel, 5% silt), wet, brown, no odor, p. graded
30 10						GP-GM		28-29.0 CONTACT w/sandy GRAVEL, minor silt (55% fn-cs gravel, 35% fn-cs sand, 10% silt), wet, lt. brown, no odor, p. graded
1127	X	85	25-50/3"	-15	>2000	GP-GM		29-30.5 SAME AS ABOVE (60% fn-cs gravel, 30% fn-cs sand, 10% silt)
						SP		30.5-31.0 SAND, minor gravel, trace silt (85% fn-cs sand, 10% fn gravel, 5% silt), wet, lt. brown, no odor, p. graded
1134	X	15	31-50/6"	-16	>2000	GW		31.0-32.0 grades to sandy GRAVEL, trace silt (60% fn-cs gravel, 35% fn-cs sand, 5% silt), wet, lt. brown, no odor, w. graded
1139	X	10	100/5"	-17	>2000	GW		32-33.5 SAME AS ABOVE w/COBBLES
35 15						SM		33.5-35.0 silty SAND, trace gravel (50% fn-cs sand, 45% silt, 5% fn gravel), wet, lt. brown, no odor
1249	X	55	85/6"	-19	>2000	GW-GM		35-36.5 sandy GRAVEL w/silt (45% fn-cs gravel, 35% fn-cs sand, 20% silt), wet, brown, no odor, w. graded
1254	X	55	40-50/3"	-20	>2000	GW-GM		36.5-38.0 SAME AS ABOVE (45% fn-cs gravel, 30% fn-cs sand, 25% silt), brown w/tan+grey mottling
1303	X	65	38-50/6"	-21	>2000	GW		38-38.5 sandy GRAVEL, trace silt (55% fn-cs gravel, 40% fn-cs sand, 5% silt), wet, brown, no odor, w. graded
40 20	X					GP-GM GW		38.5-39.5 sandy GRAVEL w/silt (45% fn-cs gravel, 30% fn-cs sand, 25% silt), wet, brown w/tan+grey mottling, no odor, ~~w.g~~ p. graded



S: 19.5-24.5'
RS-041304-10 @ 0955 BAILER

S: 25.5-30.5
RS-041304-14 @ 1105 BAILER

S: 30-35' bgs
RS-041304-18 @ 1215
INTAKE = 32.5'

S: 36-41' bgs @ 1335
RS-041304-23
RS-041304-24-DUP @ 1346
INTAKE = 40.0' bgs

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

SEE PAGE ONE

LOG OF WELL RS-46

(Page 2 of 1)

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LOG OF ~~WELL~~ RS-46

(Page ~~1~~ 3 of ~~1~~ 3)

SITE NAME ~~HAMILTON-LADREE~~

CLIENT S.C. BREEN

PROJECT # 734-002

Date/Time Started : SEE PAGE
Date/Time Completed : ONE
Total Depth :
Drilling Method :
Sampler Type :
Depth to water ATD :

Well: RS-46
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40								
1507	X	70	30-50/6"	-22	>2000	SP		39.5-40.0 SAND (100% fn-med sand), dark brown, wet, no odor, p. graded
1357	X	90	21-50/6"	-25	>2000	GW		40-41.0 GRADES TO sandy GRAVEL, trace silt (65% fn-cs grvl, 35% fn-cs sand, <5% silt), wet, brown, no odor, w. graded
1407	X	75	28/24/30	-26	>2000	GW		41-41.5 SAME AS ABOVE
						ML		41.5-42 CONTACT w/ SILT (100%), moist, red brown, no odor
1407	X	60	50/50	-27	>2000	GP-GM		42-42.5 CONTACT w/ GRAVEL w/sand w/silt (50% fn-cs grvl, 25% fn-cs sand, 25% silt), wet, no odor, p. graded, reddish-brown
45 1412	X	40	65/6"	-28	>2000			
1420	X	95	20/20/33	-29	>2000	SP		42.5-43.0 SAND w/gravel trace silt (70% fn-med sand, 25% fn grvl, 5% silt), wet, dark brown, no odor, p. graded
						GP-GM		43-44.0 grades to GRAVEL w/sand, w/silt (50% fn-cs grvl, 25% fn-cs sand, 25% silt), wet, no odor, p. graded, reddish-brown w/tan mottling
						GP		44-44.5 GRAVEL minor sand, ~~trace~~ silt (85% fn-cs grvl, 10% fine sand, 5% silt), wet, brown, no odor, p. graded
						GP-GM		44.5-45 SAME AS 43.0-44.0
50 10						GP-GM		45-45.5 SAME AS ABOVE
						GP-GM		45.5-46.25 SAME AS ABOVE
						ML		46.25-47.5 CONTACT w/ SILT (100%), sl. moist, blue-grey w/red-orange mottling, no odor + grade to blue-grey in color w/o mottling
15								
20								

Depth in Feet: 40, 45, 50 (10), 15, 20

RS-04/RS-04-3D @ 1455
INTAKE: 44.5' bgs

Drilling Company: SEE PAGE ONE
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL RS-46

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LOG OF WELL RS-47

(Page 1 of ~~2~~ 3)

SITE NAME HAMILTON-LARSEN ROADS

CLIENT S.C. GREEN

PROJECT # 734-002

Date/Time Started : 6/17/04 0855
Date/Time Completed : 6/17/04 1445
Total Depth : ~ 44' bgs
Drilling Method : HSA
Sampler Type : DOM 18" S.S.
Depth to water ATD : ~ 12.0' bgs

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	100	10/11/15	RS-061704 -01 @ 0900	6.4	ML		5.0-6.5 SILT (100% silt) moist, blue-gray w/ brown mottling, no odor
	X	100	8/11/12	-02 0903	9.0	ML		6.5-7.5 SAME AS ABOVE
						ML		7.5-8.0 SAME AS ABOVE grades to SILT, minor sand (90% silt, 10% fn sand), moist, blue-gray w/brown mottling
	X	90	4/5/6	-03 -0905	50.4	ML		8.0-9.5 SILT (100% silt), moist, dark gray, no odor
10	X	90	6/7/6	-04 0908	23.5	ML		9.5-10.8 SAME AS ABOVE
						ML		10.5-11.0 CONTACT w/ SILT minor gvl, minor sand (80% silt, 10% fn-cs gvl, 10% fn sand), moist, no odor
						ML		11.0-12.0 SAME AS ABOVE
	X	85	15/15/17	-05 0915	27.0	GW		12.0-12.5 CONTACT w/ sandy GRAVEL trace silt (55% fn-cs gvl, 40% med-cs sand, 5% silt), wet, red-brown no odor w. graded
	X	65	50/6"	-06 0920	60.7	GP		12.5-14.0 sandy GRAVEL trace silt (60% fn-cs gvl, 35% med-cs sand, 5% silt), wet, no odor, gray-brown
15	X	35	50/6"	-07 0923	57.1	GP		14-15.5 GRAVEL, minor sand, minor silt (80% fn-cs gvl, 10% cs sand, 10% silt) wet, brown, no odor
	X	70	50/6"	-08 0929	55.4	GW		15.5-17.0 sandy GRAVEL minor silt (50% fn-cs gvl, 40% fn-cs sand, 10% silt), wet, brown-gray, no odor
	X	70	50/5"	-10 1105	59.6	GW		17-18.5 SAME AS ABOVE brown
	X	85	50/6"	-11 1108	98.5	GW		18.5-19.5 SAME AS ABOVE
						GP		19.5-20.0 CONTACT w/ GRAVEL w/sand minor silt (70% fn-cs gvl, 20% fn-cs sand, 10% silt), wet, brown no odor
20								

Well: RS-47
Elev.:

RS-061704 -09
INTAKE = 10.0' bgs
@ 1040

Drilling Company: CASCADE
Drilling Crew: JAMES, ANDRE, JASON
Farallon Rep. GREG, BEAM
Ground Elevation: -
Back Fill Material: BENTONITE

LOG OF WELL RS-47

(Page ~~1~~ of ~~1~~ 3)

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LOG OF WELL RS-47

(Page 1 of 3)

SITE NAME HAMILTON-LABREE ROADS

CLIENT S.C. BREEN

PROJECT # 734-002

Date/Time Started : 4/17/04 0855
Date/Time Completed : 4/17/04 1445
Total Depth :
Drilling Method : SEE PAGE ONE
Sampler Type :
Depth to water ATD :

Well: RS-47
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	70	50/6"	-12 1112	34.2	SP		20-21.5 SAND, trace silt, trace gravel (90% fine-med sand, <5% cs gravel, <5% silt), dark brown, wet, no odor
	X	60	50/6"	-14 1116	21.8	SP		21.5-23.0 SAME AS ABOVE
	X	45	50/6"	-15 1118	6.33	GP		23.0-24.5 GRAVEL w/sand, minor silt (70% cs gravel, 20% fine-med sand, 10% silt), wet, brown w/red brown mottling, no odor
25	X	55	50/5"	-16 1120	18.7	SP		24.5-26.0 SAND minor gravel, trace silt (80% fine-med sand, 15% cs gravel, 5% silt), wet, brown, no odor
	X	40	50/5"	-17 1122	34.9	GW		26.0-27.5 GRAVEL, minor sand trace silt (85% fine-cs gravel, 10% fine-cs sand, 5% silt), wet, brown, no odor, no product
	X	45	50/6"	-18 1125	44.8	GM		27.5-29 GRAVEL minor silt minor sand (70% fine-cs gravel, 15% silt, 15% fine-cs sand), wet, no odor, brown
30	X	30	50/6	-19 1127	8.2	GP		29-30.5 GRAVEL, minor sand, minor silt (80% cs gravel, 10% fine-cs sand, 10% silt), wet, no odor, orange-brown, cobbles
	X	90	50/6"	-21 1245	5.5	SP		30.5-31.5 SAND (100% fine-med sand) wet, dark brown, no odor
						SP		31.5-32.0 grades to gravelly SAND trace silt (60% fine-med sand, 35% cs gravel, 5% silt) wet, dark brown
	X	60	50/6"	-22 1249	50.2	SW		32-33.5 gravelly SAND trace silt (60% fine-cs sand, 35% fine gravel, 5% silt), wet, brown, no odor
	X	75	50/6"	-23 1252	11.8	SW		33.5-34.0 SAME AS ABOVE
						GW		34.0-35.0 GRADES TO sandy GRAVEL minor silt medium (55% fine-cs gravel, 35% fine-cs sand, 10% silt), wet, brown
35	X	35	50/6	-24 1256	12.2	ML		35.0-35.5 SILT (100%), wet, grey, no odor
						GP		35.5-36.5 CONTACT w/ GRAVEL minor sand, minor silt (75% fine-cs gravel, 15% med-cs sand, 10% silt) wet, orange-brown, no odor
	X	35	50/5"	-25(1) 1258	10.0	SM		36.5-38.0 gravelly SAND w/silt (45% fine-cs sand, 35% fine gravel, 20% silt), wet, dark brown, cobbles
	X	50	50/5"	-26(1) 1303	12.1	GP		38-39.5 GRAVEL minor sand, trace silt (85% fine-cs gravel, 10% fine sand, 5% silt), wet, brown, no odor
40								

Depth in Feet: 20, 25, 30, 35, 40

RS-047-04-20 @ 29.5 bgs @ 1220

DMP. Sample -13 1114

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

SEE PAGE ONE

LOG OF WELL RS-47

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LOG OF WELL RS-47

(Page 3 of 3)

SITE NAME HAMILTON-LARREE ROADS
CLIENT S.C. BREEN
PROJECT # 734-002

Date/Time Started : 4/17/04 0855
Date/Time Completed : 4/17/04 1445
Total Depth :
Drilling Method : SEE PAGE ONE
Sampler Type :
Depth to water ATD :

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	55	50/6	-27 1306	20.2	SM		39.5-41.0 SAND w/gravel, moist (60% fn-cs sand, 30% fn-cs gravel, 20% silt), wet, brown, no odor
	X	45	50/5"	-28 1310	9.2	SM		41-42.5 SAME AS ABOVE
	X	LOD		-29 1314	40.3	ML		42.5-44.0 SILT minor gravel (90% silt, 10% cs gravel), moist, blue-grey, no odor
45								
10								
15								
20								

Well: Elev.:

RS-DO17041-30 @ 1350 w/BAILER @ 39.0

Drilling Company:
Drilling Crew: SEE PAGE ONE
Farallon Rep.
Ground Elevation:
Back Fill Material:

LOG OF WELL

(Page 3 of 3)

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FARALLON CONSULTING
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Issaquah, WA 98027

LOG OF WELL RS-48

(Page 1 of 1)

SITE NAME HAMILTON-LANDE LOADS

CLIENT S.L. BOSEN

PROJECT # 734-002

Date/Time Started : 6/16/04 0830
Date/Time Completed : 6/16/04 1430
Total Depth : 45' bgs
Drilling Method : HSA
Sampler Type : DM S.S. 18"
Depth to water ATD : ~7.5' bgs

Well: RS-48
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	95	6/6/6	RS-06160401-01 @ 0820	202	ML		5.0-6.5 SILT trace sand (95% silt, 5% fine sand), moist, blue-grey w/red brown mottling, no odor
	X	95	10/12/17	-02 @ 855	101.2	GM		6.5-7.5 SAME AS ABOVE GRADES TO silty GRAVEL minor sand (50% fn-cs gravel, 40% silt, 10% fn-cs sand), moist, blue grey w/red-brown mottling, no odor.
	X	90	16/14/16	-03 0857	84.7	GW		7.5-8.0 CONTACT w/GRAVEL w/sand, minor silt (60% fn-cs grvl, 25% fn-cs sand, 10% silt), wet, brown-grey, no odor, well graded
10	X	80	16/12/11	-04 0902	>2000	GW		8.0-9.5 SAME AS ABOVE, grey
						GW		9.5-10.5 SAME AS ABOVE
	X	60	50/6"	-05 0909	347	GP		10.5-11.0 CONTACT w/ sand, GRAVEL, minor silt (50% fn-cs grvl, 40% med-cs sand, 10% silt) wet, red-brown, no odor, poorly graded, cobbles
	X	60	50/6"	-06 0911	136	SP		11.0-12.5 GRAVEL, minor sand, trace silt (85% fn-cs grvl, 10% med-cs sand, 5% silt), brown wet, no odor, cobbles
						SP		12.5-13.0 SAND (100% med-cs sand), wet, dark grey, no odor, GRADES TO:
15	X	25	50/5"	-07 0914	-	GW		13.0-14.0 GRAVEL w/sand trace silt (75% fn-cs grvl, 20% fn-cs sand, 5% silt), wet, dark grey, no odor
	X	95	50/6"	-08 0918	-	SP		14.0-15.5 SAND (100% fn-med sand), wet, dark grey, no odor
						GW		GRADES TO SAND w/gravel, trace silt (75% fn-cs sand, 20% fn grvl, 5% silt), wet, dark grey, no odor
	X	75	50/6"	-11 1042	-	GW		15.5-17.0 GRAVEL w/sand, trace silt (70% fn-cs grvl, 25% med-cs sand, 5% silt), wet, brown, no odor, well graded
						GW		17-18.0 SAME AS ABOVE
	X	60	50/6"	-12 1043	33.5	SP		18-18.5 CONTACT w/SAND, trace silt (95% fn-med sand, 5% silt), wet, no odor, p. graded, dark brown
20								18.5-20.0 SAME AS ABOVE

Well: RS-48
RS-06160401-09
INTAKE = 16.0' bgs
@ 1000
DUPLICATE
@ 1015

Drilling Company: CASCADE
Drilling Crew: JAMES, ANDRE, JASON
Farallon Rep. LARRY + RYAN
Ground Elevation: --
Back Fill Material: BENTONITE

LOG OF WELL RS-48

(Page 1 of 1)

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02-14-2

FARALLON CONSULTING
320 3rd Ave. NE, Suite 200
Issaquah, WA 98027

LOG OF WELL RS-48

(Page ~~1~~ 2 of ~~1~~ 3)

SITE NAME HAMILTON-LABREE ROADS

CLIENT S.C. BOEN

PROJECT # 734-002

Date/Time Started : 6/16/04 0830
Date/Time Completed : 6/16/04 1430
Total Depth : 45' bgs
Drilling Method : HSA
Sampler Type : D&M 18" S.S.
Depth to water ATD : ~7.5' bgs

Well: RS-48
Elev.:

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	45	50/6"	-13 1045	14.0	SP		20-21.5 SAME AS ABOVE, trace gravel, minor silt (85% fn-med sand, 10% silt, 5% cs gravel
	X	55	50/6"	-14 1049	37.2	GP		21.5-22.5 GRAVEL w/sand, minor silt (70% cs gravel, 20% fn-cs sand, 10% silt), wet, no odor, brown
						SP		22.5-23.0 CONTACT w/SAND (100% fn-med sand) wet dark brown, no odor
	X	50	50/6"	-15 1054	30.5	SP		23-24.5 SAME AS ABOVE
25	X	65	50/5"	-16 1057	34.7	SP		24.5-26.0 SAME AS ABOVE
	X	65	50/6"	-17 1100	29.6	SM		26-27.5 gravelly SAND w/silt (45% fn-med sand, 35% fn-cs gravel, 20% silt), wet, brown, no odor
	X	70	50/6"	-18 1103	30.2	GW		27.5-29.0 GRAVEL w/sand, trace silt (75% fn-cs gravel, 20% sand, 5% silt), wet, brown, no odor
30	X	90	50/6"	-19 1106	40.1	SM		29-30.5 gravelly SAND, minor silt (45% fn-cs sand, 40% fn-cs sand, 15% silt), wet, no odor, brown
	X	70	50/6"	-21 1233	111.7	GP		30.5-32 GRAVEL w/sand, minor silt (65% cs gravel, 25% fn-cs sand, 10% silt), wet, brown, no odor
	X	30	50/6"	-22 1242	31.5	GP		32-33.5 SAME AS ABOVE
	X	35	50/6"	-23 1246	16.6	GP		33.5-35.0 SAME AS ABOVE (60% fn-cs gravel, 30% fn-cs sand, 10% silt)
35	X	35	50/5"	-24 1250	13.6	SW		35-36.5 SAND w/gravel, trace silt (70% fn-cs sand, 25% fn gravel, 5% silt), wet, no odor, w-graded, dark brown
	X	45	50/5"	-25 1254	18.5	SW		36.5-37.0 SAME AS ABOVE
						ML		37.0-37.5 CONTACT w/SILT, trace sand (95% silt, 5% fn sand), moist, no odor, tan-grey
	X	45	50/6"	-26 1256	43.3	GP		37.5-38.0 CONTACT w/GRAVEL, minor sand, trace silt (85% cs gravel, 10% fn-cs sand, 5% silt), wet, red-brown, no odor cobbles
40						GP		38-39.5 SAME AS ABOVE

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

SEE PAGE ONE

LOG OF WELL

(Page ~~1~~ 2 of ~~1~~ 3)

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LOG OF WELL RS-48

(Page ~~7~~ 3 of ~~17~~ 3)

SITE NAME HAMILTON-LABOSE ROAD

CLIENT G.C. BREEN

PROJECT # 734-002

Date/Time Started : 6-16-04 0830
Date/Time Completed : 6/16/04 1430
Total Depth : 45' bgs
Drilling Method : HSA
Sampler Type : DPM 18" S.S.
Depth to water ATD : ~7.5' bgs

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40	X	7D	5/6"	-27 1300	24D	GP		39.5-41 GRAVEL w/sand minor silt (70% cs gravel, 20% fn-cs sand, 10% silt), wet, brown, no odor, cobbles
	X	8D	5/6"	-29 1311	23.6	ML		41-42.0 CONTACT w/ SILT (100% silt), moist, red-brown w/grey mottling, no odor
						ML		42.0-47.5 CONTACT w/ SILT w/ sand (70% silt, 30% fn sand), moist, dark blue-grey, no odor
	X	8D	5/6"	-31 1420	42	ML		44-45 SILT (100%), moist, blue-grey, no odor
45								
50								
15								
20								

Well: Elev.:

RS-061604-3D

Depth in Feet: 40, 45, 50, 15, 20

Drilling Company:
Drilling Crew:
Farallon Rep.
Ground Elevation:
Back Fill Material:

SEE PAGE ONE

LOG OF WELL RS-48

(Page ~~7~~ 3 of ~~17~~ 7)

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02-14-20

RS-061604-28
@ 1305

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Issaquah, WA 98027

LOG OF WELL RS-L19

(Page 1 of ~~2~~ 3)

SITE NAME HAMILTON-LABREE ROADS
CLIENT S.C. BREEN
PROJECT # 734-002

Date/Time Started : 6/15/04 0930
Date/Time Completed : 6/15/04 1600
Total Depth : 49'
Drilling Method : HSA
Sampler Type : DAM 18" S.S.
Depth to water ATD : ~7.5' bgs

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
0								
5	X	90	3/4/5	-27 1538	19.1	ML		5.0-6.5 SILT (100% silt, trace organics), moist, blue-grey, no odor
	X	95	4/10/14	-28 1545	15.6	SP		6.5-7.5 SAND (100% fn sand), moist, dark grey-black, no odor
	X	95	12/14-50/4"	-29 1550	15.5	GW		7.5-8.0 CONTACT w/ GRAVEL w/sand, trace silt (75% fn-cs gvl, 20% fn-cs sand, <5% silt), wet, dark grey-black, no odor
						GW		8.0-9.5 SAME AS ABOVE (75% fn-cs gvl, 20% fn-cs sand, 5% silt)
10	X	95	18/19/18	RS-DG1504-01 @ 0953	380	GP		10-11.5 GRAVEL, minor sand, trace silt (90% fn-cs gvl, 10% coarse sand, <5% silt), wet, no odor, p. graded, dark grey
	X	80	50/6"	RS-DG1504-02 @ 0955	638	GP		11.5-13.0 GRAVEL w/sand, trace silt (85% fn-cs gvl, 15% med-cs sand, <5% silt) wet, dark grey, no odor, p. graded
	X	50	50/5"	RS-03 0958	>2000	SP		13.0-14.5 SAND, w/gravel, minor silt (65% fn-cs gvl, 25% fn-cs gvl, 10% silt), brown-grey, wet, no odor, p. graded
15	X	0	50/5"	~~-01 1001~~	—			NO RECOVERY 14.5-16.0 ROCK IN SHOE
	X	75	50/6"	-05 @ 1105	110	SM		16.0-17.5 SAND w/silt, minor gvl (60% fn-med sand, 30% silt, 10% cs gvl), wet, red-brown, no odor, p. graded
	X	70	50/6"	-06 @ 1110	41.9	SM		17.5-19.0 SAME AS ABOVE
20	X	85	50/6"	-07 @ 1114	30.7	GP-GM		19.0-20.5 GRAVEL, w/sand, minor silt (50% cs gvl, 35% fn-med sand, 15% silt), red-brown, wet, no odor, p. graded

Well: Elev.:

INTAKE @ 15.0' bgs
GW SAMPLE RS-DG1504-04 @

Depth in Feet: 0, 5, 10, 15, 20

Drilling Company: CASCADE
Drilling Crew: JAMES, ANDRE, JASON
Farallon Rep. GREG LISH
Ground Elevation: —
Back Fill Material: BENTONITE (MEDIUM CHIPS)

LOG OF WELL

(Page 1 of ~~2~~ 3)

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LOG OF WELL RS-419

(Page ~~1~~ 2 of ~~2~~ 3)

SITE NAME HAMILTON-LABUE ROAD

CLIENT S.C. BREEN

PROJECT # 734.002

Date/Time Started : 4/15/04 0930
Date/Time Completed : 4/15/04 1600
Total Depth : 49.0' bgs
Drilling Method : HSA
Sampler Type : Dim 18" S.S.
Depth to water ATD : ~7.5' bgs

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
20	X	90	50/6"	-08 1118	28.2	GP		20.5-22.0 GRAVEL, w/sand, minor silt (70% fn-cs gvl, 20% fn-med sand, 10% silt), wet, red-brown, no odor, p. graded w/cobbles
	X	90	50/6"	-09 1122	20.5	GP		22.0-23.5 SAME AS ABOVE w/COBBLES
	X	85	50/6"	-10 1122	40.0	GP		23.5-25.0 GRAVEL, minor sand, trace silt (80% fn-cs gvl, 10% fn sand, 10% silt), wet, red. brown, no odor, p. graded
25	X	95	50/6"	-11 1130	46.8	GP		25.0-26.5 SAME AS ABOVE
	X	95	50/6"	-12 1133	42.3	GW		26.5-28.0 GRAVEL, w/sand, minor silt (70% fn-cs gvl, 20% fn-cs sand, 10% silt), wet, red-brown, no odor, well graded, cobbles
	X	95	50/6"	-13 1136	76.9	GW		28.0-29.5 SAME AS ABOVE, NO COBBLES
30	X	95	50/6"	-15 1250	21.2	SP		30-31.0 SAND, trace silt (95% fn-med sand, 5% silt), wet, dark brown, no odor, p. graded
	X	80	50/6"	-16 1252	62.5			31.0-31.5 CONTACT w/ SAND w/ trace silt, (55% fn-med sand, 30% cs gvl, 15% silt), wet, light brown, no odor
	X	30	50/6"	-17 1256	28.3	SP		31.5-33.0 GRAVEL, w/sand, minor silt (65% fn-cs gvl, 25% fn-cs sand, 10% silt), wet, brown, no odor, p. graded
35	X	90	50/6"	-18 1300	810	GP		33.0-34.5 GRAVEL, minor sand, minor silt (75% fn-cs gvl, 15% fn-cs sand, 10% silt), wet, brown, no odor
						SP		34.5-36.0 SAND, w/ gvl, trace silt (65% fn-cs sand, 30% fn-cs gvl, 5% silt), wet, brown, no odor
	X	95	50/6"	-19 1310	480	SW		36-37.0 SAND, minor gvl, trace silt (80% fn-cs sand, 15% fn gvl, 5% silt), wet, dark brown, no odor
						ML		37.0-37.5 CONTACT w/SILT, trace sand, trace gvl (90% silt, 5% fn gvl, 5% cs sand), moist, no odor, yellow-brown w/red mottling
	X	95	50/6"	-20 1317	108.2			
						ML		37.5-39.0 gravelly SILT (60% silt, 40% fn-cs gvl) moist, yellow-brown w/gray-brown mottling, no odor
40	X	90	50/6"	-21 1326	186	GP		39.0-40.5 GRAVEL, minor sand, minor silt (80% fn-cs gvl, 10% cs sand, 10% silt), wet, no odor, brown,

Well: Elev.:

RS-0615-04 -14

INTAKE

Depth in Feet: 20, 25, 30, 35, 40

Drilling Company: CASCADE
Drilling Crew: JAMES, ANDRE, JASON
Farallon Rep. GREG ABBOTT
Ground Elevation: -
Fill Material: BENTONITE

LOG OF WELL

(Page ~~1~~ 2 of ~~2~~ 3)

NOTE: HAMMER IS GETTING LOCKED IN AUGER, NEED TO ALLOW DRILLER A COUPLE FEET FROM 40.5' bgs TO TRY TO FREE UP HAMMER

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Issaquah, WA 98027

LOG OF WELL RS-49

(Page 1 of 1)

SITE NAME HAMILTON-LABRE LOAD

CLIENT S.C. BREEN

PROJECT # 734-002

Date/Time Started : 6/15/04 0930
Date/Time Completed : 6/15/04 1600
Total Depth : 49.0' bgs
Drilling Method : HSA
Sampler Type : D+M 18" S.S.
Depth to water ATD : ~ 7.5' bgs

Depth in Feet	Samples	% Recovery	Blow Counts 6/6/6	Sample ID	PID (ppm)	USCS	GRAPHIC	DESCRIPTION
40								NO SAMPLE, HAMMER STUCK IN AUGER
	X	40	50/5	-22 1353	27.2	SM		43-44.5' silty SAND (55% fn sand, 45% silt), moist, wet, dark brown-grey w/red metallics, no odor
								44.5-45. SAME AS ABOVE
45	X	60	50/5"	-23 1400	>2000	ML		45.0-46.0 CONTACT w/ SILT w/sand (70% silt, 30% fn sand), moist, dark blue-grey, no odor
	X	30	50/6"	-25 1457	32.5	ML		46-47.5 SAME AS ABOVE
	X	50	50/6"	-26 1503	16.8	ML		47.5-49.0 SAME AS ABOVE
50								
15								
20								

Well: Elev.:

RS-0615041-24 1430 SAMPLE ~~LOCATED~~ = 40.0' bgs w/ AUGER

TOTAL DEPTH @ 49.0' bgs

Drilling Company: CASCADE
Drilling Crew: JAMES, ANDRE, JASON
Farallon Rep. GREG + BEAU
Ground Elevation: –
Back Fill Material: BENTONITE

LOG OF WELL

(Page 1 of 1)

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02-14

11_Private Wells

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

PW-1

S.C. Breen
08180P

DEPARTMENT OF
ECOLOGY
State of Washington

Well Tagging Form

Unique Well ID Tag Number: AGN 964 (Tag on well @ time of inspection already — I did not tag!)

Use this form ONLY if an WELL REPORT IS FOUND
(Attach the original well report to this form)

If a water well report is **NOT** available, please complete a "Water Well Report for an Existing Well" form. This form is available at Ecology's headquarters office by calling 360-407-6650 or e-mail: mbru461@ecy.wa.gov

Well Ownership, If Different From Well Report

First name	Last name	
Joe	Parypa	
Street Address: 259 Hamilton Rd.		
City: CHEHALIS	State: WA	Zip Code: 98532

Location of Well, If Different From Well Report

*Section, Township and Range are REQUIRED *

Well Address: 259 Hamilton Rd.					
City: CHEHALIS			County: Lewis		
¼ - ¼: NE	¼: SE	Section: 9	Township N.: 13N	Range: 2	☐ EWM or ☒ WWM (check one)
Latitude: 46	Degrees: 46		Minutes: 37	Seconds: 27	
Longitude	Degrees: 122		Minutes: 55	Seconds: 58	

Elevation at land surface _____ ☐ feet ☐ meters *(check one)*

Well Characteristics

Location of Well Identification Tag: ON WELL

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Scale 1:24,000 (1" = 2,000')

Indicate the location of the well within the Section by drawing a dot at that point

Section _____

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Washington State
Department of Ecology

Comments

PW-1

LYMAN MOWREY
ROUTE 2, BOX 164
CHEHALIS, WASHINGTON
PHONE SH 8-7043

Well Owner: S. C. BREEN SALE BARN
Location: LA BREE ROAD
Date Completed: JUNE 29, 1962

Depth			Description of Formation
0'	to	12 '	YELLOW CLAY
12	to	18 '	BOULDERS
18	to	58 '	CEMENT GRAVEL
58	to	120 '	BLUE CLAY
120	to	132 '	BLUE SANDY SILT
132	to	188 '	BLUE CLAY
0188	to	202 '	SAND
202	to	223 '	BLUE CLAY
223	to	227 '	BROWN CLAY
227	to	244 '	LIGHT BLUE CLAY
244	to	251 '	BROWN CLAY
251	to	286 '	LIGHT BLUE CLAY
286 - 320			SAND (ARTESIAN WATER)

SIZES AND MATERIALS USED

Top Casing Line: Inside Diameter 6 in. Wt. per ft. 17.02 lbs.
Depth 309 ft. 10 in.
Any Reduced Casing Sizes

Total Depth to bottom of Casing 309 ft. 10 in.
Total Depth to bottom of Well 320 ft. in.
Depth measured from GROUND LEVEL
Screened Well: Size of Screen: Diam. in. Length ft. Slot
Make of Screen Metal
Fittings at Top
Fittings at Bottom DRIVE SHOE - 20' SLOTTED CASING
Rock Well: Open Borehole inches diam. ft. deep below casing
Test data: (gpm) (gph) ft. drawdown. Pumped for hrs.

NOTES:

PUMP DATA

Make of Pump: Model or Type
Size: H.P. Serial No. (pump)
V. Cycle Phase Serial No. of Motor
Drop Pipe (or pipes) diam. length ft.
Seal or device between pump and casing

Special Notes:

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Washington State
Department of Ecology

The Department of Ecology does NOT Warranty the Data and/or the Information

STATE OF WASHINGTON

(1) OWNER: Name HAMILTON REGGIE Address HAMILTON ROAD CHEHALIS, WA 98532-

(2) LOCATION OF WELL: County LEWIS - SE 1/4 NW 1/4 Sec 15 T 13 N., R 2 WM
(2a) STREET ADDRESS OF WELL (or nearest address) HAMILTON ROAD

(3) PROPOSED USE: COMMERCIAL

(4) TYPE OF WORK: Owner's Number of well (If more than one) 1
NEW WELL Method: ROTARY

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 65 ft. Depth of completed well 65 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from 1 ft. to 53 ft.
WELDED " Dia. from ft. to ft.
" Dia. from ft. to ft.

Perforations: YES
Type of perforator used STAR WHEEL
SIZE of perforations 1/8 in. by 2 in.
130 perforations from 42 ft. to 49 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: NO
Manufacturer's Name
Type Model No.
Diam. slot size from ft. to ft.
Diam. slot size from ft. to ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: YES To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off N/A

(7) PUMP: Manufacturer's Name
Type NONE H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... ft.
Static level 7 ft. below top of well Date 04/13/93
Artesian Pressure lbs. per square inch Date
Artesian water controlled by N/A

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 12 gal/min. w/ stem set at 37 ft. for 1 hrs.
Artesian flow g.p.m. Date 04/13/93
Temperature of water Was a chemical analysis made? NO

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
TOPSOIL BROWN	0	6
HARDPAN BROWN	6	10
SAND GRAY	10	12
HARDPAN BROWN	12	40
GRAVEL GRAY	40	44
CLAY GRAY	44	48
CLAY BLUE	48	53
	53	65

Reggie Hamilton's Shallow Well, (Smith Tractor's Parking lot) Well log Well-2 (PW-2)

Work started 04/12/93 Completed 04/13/93

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME MOERKE & SONS PUMP & DRIL
(Person, firm, or corporation) (Type or print)

ADDRESS 611 COUSINS ROAD

(SIGNED) Ed Moerke License No. 1138

Contractor's Registration No. MOERKSP13709 Date 05/19/93

PW-2

Hamilton's TCE well
Faxed per request 9/21/93 ED

nal and First Copy with
nt of Ecology
Copy—Owner's Copy
y—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 029695

Water Right Permit No. _____

WNER: Name GEAR BOX INC Address 281 HAMILTON RD, CHEHALIS

OCATION OF WELL: County Lewis SE ¼ SE ¼ Sec 9 T 13 N., R 2W W.M.

TREET ADDRESS OF WELL (or nearest address) SAME

ROPOSED USE: ☑ Domestic ☐ Irrigation ☐ DeWater Industrial ☑ Test Well ☐ Municipal ☐ Other ☐

YPE OF WORK: Owner's number of well (if more than one) _____

andoned ☐ New well ☑ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☑ Bored ☐ Driven ☐ Jetted ☐

IMENSIONS: Diameter of well 6 inches.

lled 60 feet. Depth of completed well 60 ft.

ONSTRUCTION DETAILS:

sing installed: 6 " Diam. from +18" ft. to 60 ft.

ded ☑ _____ " Diam. from _____ ft. to _____ ft.

er installed ☐

eaded ☐ _____ " Diam. from _____ ft. to _____ ft.

rforations: Yes ☑ No ☐

pe of perforator used MILLS KNIFE

E of perforations 1/4 in. by 2 1/4 in.

15 perforations from 42 ft. to 46 ft.

_____ perforations from _____ ft. to _____ ft.

_____ perforations from _____ ft. to _____ ft.

reens: Yes ☐ No ☑

nufacturer's Name _____

pe _____ Model No. _____

m. _____ Slot size _____ from _____ ft. to _____ ft.

m. _____ Slot size _____ from _____ ft. to _____ ft.

avel packed: Yes ☐ No ☑ Size of gravel _____

avel placed from _____ ft. to _____ ft.

rface seal: Yes ☑ No ☐ To what depth? 25 ft.

terial used in seal Cement

any strata contain unusable water? Yes ☐ No ☑

pe of water? _____ Depth of strata _____

thod of sealing strata off _____

UMP: Manufacturer's Name _____

pe: _____ H.P. _____

ATER LEVELS: Land-surface elevation above mean sea level _____ ft.

atic level 10 ft. below top of well Date 2-9-90

esian pressure _____ lbs. per square inch Date _____

Artesian water is controlled by _____ (Cap, valve, etc.)

ELL TESTS: Drawdown is amount water level is lowered below static level

as a pump test made? Yes ☑ No ☐ If yes, by whom? DRILLER

ield: 38 gal./min. with 2 ft. drawdown after 4 hrs.

" " " "

" " " "

covery data (time taken as zero when pump turned off) (water level measured m well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level
	12				
	10				

Date of test 2-13-90

iler test _____ gal./min. with _____ ft. drawdown after _____ hrs.

test 50 gal./min. with stem set at 40 ft. for 1 hrs.

esian flow _____ g.p.m. Date _____

mperature of water _____ Was a chemical analysis made? Yes ☑ No ☐

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
TOPSOIL	0	2
CLAY, YELLOW W/ GRAVEL	2	6
CLAY, YELLOW, GRAVEL - Cemented	6	28
CLAY & GRAVEL, SOME WATER	28	32
CLAY YELLOW W/ GRAVEL	32	42
SAND & GRAVEL WATER BEARING	42	48
CLAY BLUE	48	60

United Rentals
Shallow Well: Well Log:
Well 3 (PW-3)

PW-3

Work started 2-8-90 Completed 2-9 1990

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME WILLIAMS WELL DRILLING INC (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 957 JACKSON Toledo, WA

(Signed) [signature] (WELL DRILLER) License No. 0525

Contractor's Registration No. 000-022-484 Date 2-13 1990

(USE ADDITIONAL SHEETS IF NECESSARY)

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WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 070406

UNIQUE WELL I.D. # ACC 939

Water Right Permit No. _____

OWNER: Name RIGGIE HAMILTON Address 269 HAMILTON Rd. N

LOCATION OF WELL: County LEWIS SE 1/4 SE 1/4 Sec 9 T. 13 N., R. 2W W.M.

STREET ADDRESS OF WELL (or nearest address) SAME

PROPOSED USE: ☒ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

TYPE OF WORK: Owner's number of well (If more than one) _____

Abandoned ☐ New well ☒ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☒ Rotary ☐ Bored ☐ Driven ☐ Jetted ☐

DIMENSIONS: Diameter of well 6 inches.

Drilled 237 feet. Depth of completed well 235 ft.

CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 235 ft.
Welded ☒ Liner installed ☐ Threaded ☐
" Diam. from ft. to ft.
" Diam. from ft. to ft.

Perforations: Yes ☐ No ☒

Type of perforator used _____

SIZE of perforations _____ in. by _____ in.

_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☒

Manufacturer's Name _____

Type _____ Model No. _____

Diam. ____ Slot size _____ from _____ ft. to _____ ft.
Diam. ____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel _____

Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.

Material used in seal BENTONITE

Did any strata contain unusable water? Yes ☐ No ☒

Type of water? _____ Depth of strata _____

Method of sealing strata off _____

PUMP: Manufacturer's Name _____

Type: _____ H.P. _____

WATER LEVELS: Land-surface elevation above mean sea level _____ ft.

Static level FLOWING ft. below top of well Date 7-16-96

Artesian pressure 0 lbs. per square inch Date 7-16-96

Artesian water is controlled by CAP (Cap, valve, etc.)

PW-123

WELL TESTS: Drawdown is amount water level is lowered below static level

Was a pump test made? Yes ☐ No ☒ If yes, by whom? _____

Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.

" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____

Bailer test 18 gal./min. with 165 ft. drawdown after 1 hrs.

Airtest _____ gal./min. with stem set at _____ ft. for _____ hrs.

Artesian flow _____ g.p.m. Date _____

Temperature of water _____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
TOP SOIL	0'	2'
BROWN clay + Boulders	2'	25'
Brown sandy clay + Boulders SOME WATER 28'-45'	25'	45'
RED clay	45'	47'
BLUE CLAY	47'	61'
VERY sandy BLUE CLAY SOME WATER 61'-67'	61'	67'
BLUE CLAY	67'	190'
BLUE sandy CLAY	190'	208'
GRAY CLAY	208'	218'
VERY sandy BLUE CLAY	218'	235'
WATER BEARING COURSE SAND	235	237'
Reggie Hamilton's Deepwell, Well log PW-23		

Work Started 7-10-96 19. Completed 7-16 19 96

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME ROBERTS WELL DRILLING (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 1090 HWY 603 CHEHALIS

(Signed) [signature] (WELL DRILLER) License No. 0528

Contractor's Registration No. ROBERWD121DP Date 7-17 1996

(USE ADDITIONAL SHEETS IF NECESSARY)

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WATER WELL REPORT

STATE OF WASHINGTON

startcard # Application No. 005902

Permit No. ....

) OWNER: Name Ron Ames Address 2402 Rice Rd. Chehalis

) LOCATION OF WELL: County Lewis — SE ¼ SW ¼ Sec 9 T 13 N., R. 2W W.M.

aring and distance from section or subdivision corner

) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

) DIMENSIONS: Diameter of well 6 inches.
Drilled ..... ft. Depth of completed well ..... ft.

) CONSTRUCTION DETAILS: Abandoned

Casing installed: ..." Diam. from ... ft. to ... ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☐ ..." Diam. from ... ft. to ... ft.

Perforations: Yes ☐ No ☒
Type of perforator used ...
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ...
Type ... Model No. ...
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ...
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☐ No ☒ To what depth? ... ft.
Material used in seal ...
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? ... Depth of strata ...
Method of sealing strata off ...

) PUMP: Manufacturer's Name N/A
Type: ... H.P. ...

) WATER LEVELS: Land-surface elevation above mean sea level N/A ft.
atic level ... ft. below top of well Date ...
tesian pressure ... lbs. per square inch Date ...
Artesian water is controlled by ... (Cap, valve, etc.)

) WELL TESTS: Drawdown is amount water level is lowered below static level
as a pump test made? Yes ☐ No ☐ If yes, by whom? ...
eld: ... gal./min. with ... ft. drawdown after ... hrs.
" " " " "
" " N/A " "
covery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ...
dier test ... gal./min. with ... ft. drawdown after ... hrs.
tesian flow ... g.p.m. Date ...
mperature of water ... Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Topsoil - Brown	0	3
Cemented Sand & Gravel	3	32
Abandoned		
Concrete from 0 to 32'		

DEPARTMENT OF ECOLOGY
'89 MAY 1 PM 2
RECEIVED
PW-24

Work started Aug 17, 1988 Completed Aug 17, 1988

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Moerke & Sons (Person, firm, or corporation) (Type or print)

Address 611 Cousins Rd. Chehalis

[Signed] Ed Moerke (Well Driller)

License No. 1138 Date April 16, 1989

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WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name Newaukum Valley Community Bldg Address Rice Rd - Chehalis

(2) LOCATION OF WELL: County Lewis NE¼ - SE¼ SW¼ Sec. 9 T. 13 N., R. 2 W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 31 ft. Depth of completed well 31 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +1 ft. to 31 ft.
Threaded ☐ ____" Diam. from ____ ft. to ____ ft.
Welded ☐ ____" Diam. from ____ ft. to ____ ft.

Perforations: Yes ☐ No ☒
Type of perforator used ____
SIZE of perforations ____ in. by ____ in.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.
____ perforations from ____ ft. to ____ ft.

Screens: Yes ☐ No ☒
Manufacturer's Name ____
Type ____ Model No. ____
Diam. ____ Slot size ____ from ____ ft. to ____ ft.
Diam. ____ Slot size ____ from ____ ft. to ____ ft.

Gravel packed: Yes ☐ No ☒ Size of gravel: ____
Gravel placed from ____ ft. to ____ ft.

Surface seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal Puddled Clay
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ____ Depth of strata ____
Method of sealing strata off ____

(7) PUMP: Manufacturer's Name Red Jacket
Type: Sub. H.P. ½

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 10 ft. below top of well Date 1/24/85
Artesian pressure ____ lbs. per square inch Date ____
Artesian water is controlled by ____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom? ____
Yield: ____ gal./min. with ____ ft. drawdown after ____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ____
Bailer test 8.5 gal./min. with 10 ft. drawdown after 1 hrs.
Artesian flow ____ g.p.m. Date ____
Temperature of water ____ Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Topsoil - Drk Brn	0	10
Gravel & Boulders	10	16
Clay Blue Grey	16	23
Sand & Gravel	23	31

RECEIVED
'85 FEB 5 P 3:16
DEPARTMENT OF ECOLOGY
S.W. REGIONAL OFFICE

PW-21

Work started JAN. 24, 19 85 Completed JAN. 30, 19 85

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Moeke & Son's (Person, firm, or corporation) (Type or print)

Address 611 Cousins Rd. Chehalis

[Signed] Ed Moeke (Well Driller)

License No. 1138 Date JAN. 24, 19 85

12_Unsampled Private Wells

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WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

1) OWNER: Name GLEN COOK Address 2153 RICE RD. CHEHALIS WA.

2) LOCATION OF WELL: County LEWIS — SW¼ NW¼ Sec. 9 T. 13 N., R. 2W W.M.

earing and distance from section or subdivision corner

3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

4) TYPE OF WORK: Owner's number of well (if more than one) .....

New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

5) DIMENSIONS: Diameter of well 6 inches.
Drilled 35 ft. Depth of completed well 35 ft.

6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 30 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☑ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal CEMENT & BENTONITE
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Depth of strata
Method of sealing strata off

7) PUMP: Manufacturer's Name
Type: H.P.

8) WATER LEVELS: Land-surface elevation above mean sea level ..... ft.
tatic level 7 ft. below top of well Date 8-20-85
rtesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☑ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

ecovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
aller test 20 gal./min. with 16 ft. drawdown after 1/2 hrs.
rtesian flow g.p.m. Date
emperature of water Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
CLAY YELLOW	0	20
CONGLOMERATE YEL.	20	31
CLAY BLUE	31	35
16 GAL. PER MIN.		
IN SAND + GRAVEL AT 31 FT.		

RECEIVED
'85 OCT 14 P3:33
DEPARTMENT OF ECOLOGY
S.W. REGIONAL OFFICE

Work started 8-18 19 85 Completed 8-20 19 85

WELL DRILLER'S STATEMENT: EPA 001517

This well was drilled under my juris
true to the best of my knowledge and b

NAME BRANK DRILLING (Person, firm, or corporation) (Type or print)

Address WINLOCK WASH

[Signed] Kenneth C. Brank (Well Driller)

License No. 0048 Date 8-25 19 85

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WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. 064522

Water Right Permit No.

(1) OWNER: Name Earl Bloomquist Address 2144 Rice Rd., Chehalis

(2) LOCATION OF WELL: County Lewis SW ¼ NE ¼ Sec 8 T 13N N., R 2W W.M.

(2a) STREET ADDDRESS OF WELL (or nearest address) 2144 Rice Rd., Chehalis

(3) PROPOSED USE: [X] Domestic [ ] Irrigation [ ] DeWater Industrial [ ] Test Well [ ] Municipal [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one)
Abandoned [ ] New well [X] Deepened [ ] Reconditioned [ ]
Method: Dug [ ] Cable [X] Rotary [ ] Bored [ ] Driven [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 34 feet. Depth of completed well 34 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 34 ft.
Welded [X] " Diam. from ft. to ft.
Liner installed [ ] " Diam. from ft. to ft.
Threaded [ ]

Perforations: Yes [ ] No [X]
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes [ ] No [X]
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes [ ] No [X] Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes [X] No [ ] To what depth? 20 ft.
Material used in seal Bentinite
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 11 ft. below top of well Date 8-17-91
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [X] If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 20 gal./min. with 9 ft. drawdown after 1 hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Top Soil	0	2
Yellow Clay & Boulders	2	20
Red Sand	20	24
Yellow Sandy Clay & gravel	24	28
Water Bearing Sand & Gravel	28	34

Work started 8-15-91, 19. Completed 8-17-91, 19

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME Kenneth E. Witham/Roberts Well Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 793 N.W. Pennsylvania, Chehalis

(Signed) Kenneth E. Witham (WELL DRILLER) License No. 0528

Contractor's Registration No. ROBERWD121DP Date 8-19-91, 19

(USE ADDITIO EPA 001499) 92

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WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

) OWNER: Name Keith Collier Address 1941 RICE RD. CHEHALIS WASH

) LOCATION OF WELL: County LEWIS — NW¼ NE¼ Sec. 8 T. 13 N., R. 2W W.M.

aring and distance from section or subdivision corner

) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☑ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

) DIMENSIONS: Diameter of well 6 inches.
Drilled 60 ft. Depth of completed well 60 ft.

) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 58 ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☑ ..." Diam. from ... ft. to ... ft.

Perforations: Yes ☐ No ☑
Type of perforator used ...
SIZE of perforations ... in. by ... in.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☑
Manufacturer's Name ...
Type ... Model No. ...
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☐ No ☑ Size of gravel: ...
Gravel placed from ... ft. to ... ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal CEMENT & BENTONITE
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? ... Depth of strata ...
Method of sealing strata off ...

) PUMP: Manufacturer's Name ...
Type: ... H.P. ...

) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
atic level 6 ft. below top of well Date 8-28-84
tesian pressure ... lbs. per square inch Date ...
Artesian water is controlled by ... (Cap, valve, etc.)

) WELL TESTS: Drawdown is amount water level is lowered below static level
as a pump test made? Yes ☐ No ☑ If yes, by whom? ...
ield: ... gal./min. with ... ft. drawdown after ... hrs.
" " "
" " "

covery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test ...
ller test 30 gal./min. with 40 ft. drawdown after 4 hrs.
tesian flow ... g.p.m. Date ...
mperature of water ... Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
CLAY YELLOW	0	10
CLAY YELLOW - SANDY	10	38
CLAY BLUE	38	45
SAND	45	58
SAND & GRAVEL 20 GPM	58	60

RECEIVED
MAY 10 1984
DEPARTMENT OF ECOLOGY
S.W. REGIONAL OFFICE

Work started 8-26, 19 84 Completed 8-28, 19 84

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and is true to the best of my knowledge and belief.

EPA 001502

NAME BRANK DRILLING (Person, firm, or corporation) (Type or print)

Address WINLOCK WASH

[Signed] Kenneth C. Brank (Well Driller)

License No. 0040 Date 8-28, 19 84

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ird Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 012072

Water Right Permit No. _____

1) OWNER: Name Dean Kestner Address 1942 Rice Rd Chehalis

2) LOCATION OF WELL: County Lewis NW ¼ NE ¼ Sec 9 T. 13 N., R. 2W W.M.

2a) STREET ADDRESS OF WELL (or nearest address) Rice Rd Chehalis

3) PROPOSED USE: ☑ Domestic ☐ Irrigation ☐ DeWater Industrial ☐ Test Well ☐ Municipal ☐ Other ☐

4) TYPE OF WORK: Owner's number of well (if more than one) _____

Abandoned ☐ New well ☑ Deepened ☐ Reconditioned ☐ Method: Dug ☐ Cable ☐ Rotary ☑ Bored ☐ Driven ☐ Jetted ☐

5) DIMENSIONS: Diameter of well 6 inches. Drilled 42 feet. Depth of completed well 37 ft.

6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from +1 ft. to 22 ft.
Welded ☐ _____" Diam. from _____ ft. to _____ ft.
Liner installed ☐
Threaded ☐ _____" Diam. from _____ ft. to _____ ft.

Perforations: Yes ☐ No ☑
Type of perforator used _____
SIZE of perforations _____ in. by _____ in.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes ☐ No ☑
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes ☐ No ☑ Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 12 ft. below top of well Date 8/89
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest 15 gal./min. with stem set at 35 ft. for 2 hrs.
Artesian flow _____ g.p.m. Date _____

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Top Soil	0	2
Yellow Clay	2	26
Gravel & water	26	28
Gray Clay	28	35
Sand & wet Tan	35	37
Gray Clay	37	42

89 AUG 23

Work started 8/89, 19. Completed 8/89, 19.

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for ... and its compliance with all Washington we... Materials used and the information reported ... knowledge and belief.

EPA 001506

NAME Chehalis Drilling (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)

Address 7115 191st SW Rochester

(Signed) Terry Cain (WELL DRILLER) License No. 0151

Contractor's Registration No. CHEHAW0173NY Date 8/89, 19

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epartment of Ecology
econd Copy — Owner's Copy
hird Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

1) OWNER: Name LARRY UNZELMAN Address BIRE ROAD, CHEHALIS, WASH.

2) LOCATION OF WELL: County LEWIS NE ¼ NE ¼ Sec. 8 T 13 N., R 2W W.M.

(Bearing and distance from section or subdivision corner

3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☑ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 35 ft. Depth of completed well 35 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6 " Diam. from 0 ft. to 34 ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☑ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal CEMENT + BENTONITE
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 5 ft. below top of well Date 6-4-75
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 30 gal./min. with 10 ft. drawdown after 4 hrs.
Artesian flow g.p.m. Date 6-4-75
Temperature of water Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
CLAY YELLOW	0	8
CONGLOMERATE YELLOW	8	18
SANDSTONE BLUE	18	31
GRAVEL - SMALL 30 G.P.M.	31	35
BLUE CLAY AT 35 FT.		

RECEIVED
JUN 6 1975
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started 6-2, 19 75 Completed 6-4, 19 75

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME BRANK DRILLING (Person, firm, or corporation) (Type or print)

Address RT. 2 Box 456 WINLOCK, WAS.

[Signed] Kenneth C. Brank (Well Driller)

License No. 0040 Date 6-6, 19 75

EPA 001512

105

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Start Card No. 021746

Water Right Permit No. _____

(1) OWNER: Name HARVEY GREEN Address 375 HAMILTON RD CHEHALIS, WA

(2) LOCATION OF WELL: County SAME NW x SW x Sec 15 T 13 N., R 2W W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) LEWIS Co.

(3) PROPOSED USE: [x] Domestic [ ] Irrigation [ ] DeWater Industrial [ ] Test Well [ ] Municipal [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one) _____
Abandoned [ ] New well [x] Deepened [ ] Reconditioned [ ]
Method: Dug [ ] Cable [ ] Rotary [x] Bored [ ] Driven [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 60 feet. Depth of completed well 60 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from +1 ft. to 38 ft.
Welded [x] _____ " Diam. from _____ ft. to _____ ft.
Liner installed [ ] _____ " Diam. from _____ ft. to _____ ft.
Threaded [ ]

Perforations: Yes [x] No [ ]
Type of perforator used MILLS KNIFE
SIZE of perforations 1/4 in. by 2 1/4 in.
12 perforations from 28 ft. to 31 ft.
_____ perforations from _____ ft. to _____ ft.
_____ perforations from _____ ft. to _____ ft.

Screens: Yes [ ] No [x]
Manufacturer's Name _____
Type _____ Model No. _____
Diam. _____ Slot size _____ from _____ ft. to _____ ft.
Diam. _____ Slot size _____ from _____ ft. to _____ ft.

Gravel packed: Yes [ ] No [x] Size of gravel _____
Gravel placed from _____ ft. to _____ ft.

Surface seal: Yes [x] No [ ] To what depth? 20 ft.
Material used in seal Cement 10-20 Bentonite 0-10
Did any strata contain unusable water? Yes [ ] No [x]
Type of water? _____ Depth of strata _____
Method of sealing strata off _____

(7) PUMP: Manufacturer's Name _____
Type: _____ H.P. _____

(8) WATER LEVELS: Land-surface elevation above mean sea level _____ ft.
Static level 18 ft. below top of well Date 5/15/90
Artesian pressure _____ lbs. per square inch Date _____
Artesian water is controlled by _____ (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [ ] If yes, by whom? _____
Yield: _____ gal./min. with _____ ft. drawdown after _____ hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test _____
Bailer test _____ gal./min. with _____ ft. drawdown after _____ hrs.
Airtest 8 gal./min. with stem set at 30 ft. for 1 hrs.
Artesian flow _____ g.p.m. Date _____
Temperature of water _____ Was a chemical analysis made? Yes [ ] No [ ]

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
TOPSOIL	0	2
CLAY, yellow	2	18
CLAY, yellow w/GRAVEL	18	27
SAND & GRAVEL WATER	27	31
CLAY, yellow	31	35
CLAY, Blue	35	60

RECEIVED 90 NOV -2 P2:59 DEPARTMENT OF ECOLOGY WATER RESOURCES

Work started 5/14, 19 90 Completed 5/15, 19 90

WELL CONSTRUCTOR CERTIFICATION:

I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME WILLIAMS WELL DRILLING INC (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 951 Jackson Hwy Toledo WA
(Signed) Richie Williams (WELL DRILLER) License No. 0525
Contractor's Registration No. ORO-022-480 Date 6/12, 19 90

(USE ADDITIO EPA 001545 138

File Original and First Copy with Department of Ecology
Second Copy — Owner's Copy
Third Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Brent Morris Address 191 Hamilton Rd. Chehalis 98532

(2) LOCATION OF WELL: County Lewis NW¼ SE¼ SE¼ Sec. 15 T. 13 N., R. 2W W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☑ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) .....
New well ☑ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☑ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 44 ft. Depth of completed well 44 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 24 ft. 5
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☑
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☑
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☑ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☑ No ☐ To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☑
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level 200 ft.
Static level 11 ft. below top of well Date July 23
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☑ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 25 gal./min. with 21 ft. drawdown after 1 hrs.
Artesian flow g.p.m. Date July 23
Temperature of water Was a chemical analysis made? Yes ☐ No ☑

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Clay Boulders gravel	0	26
Cemented gravel	26	30
Clay	30	37
Sand & gravel	37	44

RECEIVED
AUG 8 1977
DEPARTMENT OF ECOLOGY
SOUTHWEST REGIONAL OFFICE

Work started July 12 19 76 Completed July 14 19 76

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Gill well Drilling Co. (Person, firm, or corporation) (Type or print)

Address 3998 Jackson Hwy Chehalis

[Signed] Forest Gill (Well Driller)

License No. 0163 Date July 14 19 76

(USE ADDITIONAL SHEETS IF NECESSARY)

EPA 001555

ile Original and First Copy with
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econd Copy — Owner's Copy
hird Copy — Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

(1) OWNER: Name Stulken Enterprises Address 185 Hamilton Rd., Chehalis, Wa. 98532

(2) LOCATION OF WELL: County Lewis ¼ SE ¼ Sec 22 T 13 N., R 2W W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one)....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☒ Driven ☐
Reconditioned ☐ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 77 ft. Depth of completed well 77 ft.

(6) CONSTRUCTION DETAILS:

Casing installed: 6" Diam. from 0 ft. to 58 ft.
Threaded ☐ 5" PVC Diam. from 55 ft. to 77 ft.
Welded ☒ " Diam. from ft. to ft.

Perforations: Yes ☒ No ☐
Type of perforator used Drilled
SIZE of perforations ½ in. by Round in.
20 perforations from 58 ft. to 77 ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 20 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level.... ft.
Static level 35 ft. below top of well Date 9/9/83
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☒ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 17 gal./min. with 25 ft. drawdown after 3 hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Topsoil	0	1
Compact Clay & Sand, Yellow	1	7
Compact Clay, Sand, Pea Gravel Brown	7	32
Compact Clay & Pea Gravel	32	46
Sand & Pea Gravel (Water Bearing)	46	47
Compact Clay & Gravel, Yellow	47	57
Gravel	57	58
Compact Clay, Yellow	58	63
Compact Clay, Blue	63	77

RECEIVED SEP 26 1983 DEPARTMENT OF ECOLOGY SOUTHWEST REGIONAL OFFICE

Work started 9/6, 19 83 Completed 9/9, 19 83

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME Williams Well Drilling, Inc. (Person, firm, or corporation) (Type or print)

Address 957 Jackson Hwy, So., Toledo, Wa. 98591

[Signed] G. L. Calvin (Well Driller)

License No. 0070 Date September 22, 1983

EPA 001600

193

(USE ADDITIONAL SHEETS IF NECESSARY)

and First Copy with
of Ecology
—Owner's Copy
—Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Application No. .....
Permit No. .....

ER: Name HENNING ENTERPRISES Address 155 HAMILTON Rd N. Chehalis

ATION OF WELL: County LEWIS — SE ¼ NW ¼ Sec. 9 T 13 N., R 2W W.M.
distance from section or subdivision corner

POSED USE: Domestic ☐ Industrial ☒ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

E OF WORK: Owner's number of well (if more than one) ....
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ AIR Rotary ☒ Jetted ☐

ENSIONS: Diameter of well ..... inches.
..... ft. Depth of completed well ..... ft.

STRUCTION DETAILS:
g installed: 6" Diam. from 0 ft. to 41 ft.
ıreaded ☐ ....." Diam. from ..... ft. to ..... ft.
Welded ☑ ....." Diam. from ..... ft. to ..... ft.

rations: Yes ☒ No ☐
ype of perforator used TORCH
IZE of perforations ¼" in. by 6" in.
40 perforations from 30 ft. to 40 ft.
..... perforations from ..... ft. to ..... ft.
..... perforations from ..... ft. to ..... ft.

ens: Yes ☐ No ☒
fanufacturer's Name .....
ype ..... Model No. .....
Diam. ..... Slot size ..... from ..... ft. to ..... ft.
Diam. ..... Slot size ..... from ..... ft. to ..... ft.

el packed: Yes ☐ No ☒ Size of gravel: .....
Gravel placed from ..... ft. to ..... ft.

ce seal: Yes ☒ No ☐ To what depth? 18 ft.
Material used in seal BENTONITE
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ..... Depth of strata .....
Method of sealing strata off .....

P: Manufacturer's Name .....
Type: ..... H.P. .....

ER LEVELS: Land-surface elevation above mean sea level .... ft.
7' ft. below top of well Date 7-31-79
ature ..... lbs. per square inch Date .....
rtesian water is controlled by .....
(Cap, valve, etc.)

L TESTS: Drawdown is amount water level is lowered below static level
test made? Yes ☐ No ☒ If yes, by whom? .....
..... gal./min. with ..... ft. drawdown after ..... hrs.
..... " ..... " ..... "
..... " ..... " ..... "

ta (time taken as zero when pump turned off) (water level from well top to water level)

Water Level	Time	Water Level	Time	Water Level

est .....
..... gal./min. with 20 ft. drawdown after 1 hrs.
..... gpm. Date .....
of water ..... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
BRN CLAY SCATTERED ROCKS	0	20
CLAY & GRAVEL	20	38
SAND & GRAVEL (WATER BEARING)	38	41
BLUE CLAY	41	+

Work started 7-30, 19 79 Completed 7-31, 19 79

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME KING BROS DRILLING INC
(Person, firm, or corporation) (Type or print)

Address PO BOX 376 CENTRALIA

[Signed] Clair C King
(Well Driller)

License No. 0243 Date 8-1, 19 79

ile Original and First Copy with
epartment of Ecology
econd Copy — Owner's Copy
hird Copy — Driller's Copy

WATER WELL REPORT

STATE OF WASHINGTON

Application No. .....

Permit No. .....

(1) OWNER: Name HARV. BROEN Address Hamilton Rd. Chehalis

(2) LOCATION OF WELL: County Lewis NE¼ NE¼ NW¼ Sec 15 T 13 N., R. 2W W.M.

Bearing and distance from section or subdivision corner

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐ Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) ....

New well ☐ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☒ Rotary ☐ Jetted ☐

(5) DIMENSIONS: Diameter of well 24 inches.
Drilled ..... ft. Depth of completed well 26 ft.

(6) CONSTRUCTION DETAILS: PVC

Casing installed: 6" Diam. from +1 ft. to 26 ft.
Threaded ☐ ..." Diam. from ... ft. to ... ft.
Welded ☐ ..." Diam. from ... ft. to ... ft.

Perforations: Yes ☒ No ☐
Type of perforator used SKILL SAW
SIZE of perforations 4 X ... in. by 2 in.
150 perforations from 15 ft. to 26 ft.
... perforations from ... ft. to ... ft.
... perforations from ... ft. to ... ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type ... Model No.
Diam. ... Slot size ... from ... ft. to ... ft.
Diam. ... Slot size ... from ... ft. to ... ft.

Gravel packed: Yes ☒ No ☐ Size of gravel: 3/8
Gravel placed from 15 ft. to 26 ft.

Surface seal: Yes ☒ No ☐ To what depth? 15 ft.
Material used in seal Concrete & Bentonite
Did any strata contain unusable water? Yes ☐ No ☒
Type of water? ... Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name NA
Type: ... H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level .... ft.
Static level 5 ft. below top of well Date
Artesian pressure ... lbs. per square inch Date JAN 7 88
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: ... gal./min. with ... ft. drawdown after ... hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 20 gal./min. with 15 ft. drawdown after 1 hrs.
Artesian flow ... g.p.m. Date 1-7-88
Temperature of water ... Was a chemical analysis made? Yes ☐ No ☒

(10) WELL LOG:

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.

MATERIAL	FROM	TO
Converted 24" Tiled well to 6" Gravel Packed		

RECEIVED
JAN 26 P3:37
WATER RIGHTS OFFICE

Work started JAN 6, 19 88 Completed JAN 7, 19 88

WELL DRILLER'S STATEMENT

EPA 001546

This well was drilled under my jur
true to the best of my knowledge and

NAME Moore & Sons (Person, firm, or corporation) (Type or print)

Address 611 Cousins Rd.

[Signed] Ed Moore (Well Driller)

License No. 1138 Date 1-22, 19 88

File Original and First Copy with Department of Ecology
Second Copy—Owner's Copy
Third Copy—Driller's Copy

WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. 203914
Water Right Permit No.

(1) OWNER: Name Mike Gray Address Hamilton Rd. Chehalis

(2) LOCATION OF WELL: County Lewis SW¼ NE¼ Sec 15 T 13 N., R 2 W W.M.

(2a) STREET ADDRESS OF WELL (or nearest address) Same

(3) PROPOSED USE: [X] Domestic [ ] Irrigation [ ] DeWater Industrial [ ] Test Well [ ] Municipal [ ] Other [ ]

(4) TYPE OF WORK: Owner's number of well (if more than one)
Abandoned [ ] New well [X] Deepened [ ] Reconditioned [ ]
Method: Dug [ ] Cable [X] Rotary [ ] Bored [ ] Driven [ ] Jetted [ ]

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 38 feet. Depth of completed well 38 ft.

(6) CONSTRUCTION DETAILS:
Casing Installed: 6 " Diam. from +1 ft. to 36 ft.
Welded [X] " Diam. from ft. to ft.
Liner Installed [ ] Threaded [ ] " Diam. from ft. to ft.

Perforations: Yes [ ] No [X]
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes [ ] No [X]
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes [ ] No [X] Size of gravel
Gravel placed from ft. to ft.

Surface seal: Yes [X] No [ ] To what depth? 18 ft.
Material used in seal Bentonite
Did any strata contain unusable water? Yes [ ] No [X]
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name N/A
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ft.
Static level 11 ft. below top of well Date 10-2-92
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes [ ] No [ ] If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test 10 gal./min. with 16 ft. drawdown after 1 hrs.
Airtest gal./min. with stem set at ft. for hrs.
Artesian flow g.p.m. Date 10-2-92
Temperature of water Was a chemical analysis made? Yes [ ] No [X]

(10) WELL LOG or ABANDONMENT PROCEDURE DESCRIPTION

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of information.

MATERIAL	FROM	TO
Sandy Clay Loam Brown Soft	0	8
Clay Brown "	8	11
Cmt Sand & Gravel with Boulders	11	38

Work started 9-28, 19. Completed 10-2, 1992

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME MOERKE & Son's (PERSON, FIRM, OR CORPORATION) (TYPE OR PRINT)
Address 6K Cougars Rd. Chehalis
(Signed) Ed Moerke (WELL DRILLER) License No. 1138
Contractor's Registration No. MOERKSP13 Date 11-10, 1995

(USE ADDITIONAL SHEETS IF NECESSARY)

EPA 001550

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WATER WELL REPORT
STATE OF WASHINGTON

Start Card No. 065920
Water Right Permit No.

(1) OWNER: Name WEST COAST OIL Address 119 HAMILTON RD. CENTRALIA, WA 98531-

(2) LOCATION OF WELL: County LEWIS - 1/4 SE 1/4 Sec 15 T 13 N., R 2W WM
(2a) STREET ADDRESS OF WELL (or nearest address) 119 HAMILTON RD.

(3) PROPOSED USE: DOMESTIC

(4) TYPE OF WORK: Owner's Number of well (If more than one)
NEW WELL Method: ROTARY AIR

(5) DIMENSIONS: Diameter of well 6 inches
Drilled 81 ft. Depth of completed well 75 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Dia. from +1 ft. to 57 ft.
STEEL 6 " Dia. from 55 ft. to 61 ft.
5 " Dia. from 71 ft. to 75 ft.

Perforations: NO
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: YES
Manufacturer's Name HUSTON
Type STAINLESS STEEL Model No. TELESCOPE
Diam. 6 slot size 10 from 61 ft. to 66 ft.
Diam. 6 slot size 10 from 66 ft. to 71 ft.

Gravel packed: NO Size of gravel
Gravel placed from ft. to ft.

Surface seal: YES To what depth? 20 ft.
Material used in seal CEMENT GROUT
Did any strata contain unusable water? NO
Type of water? Depth of strata ft.
Method of sealing strata off PRESSURE GROUT

(7) PUMP: Manufacturer's Name
Type N/A H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ... 65 ft.
Static level 6 ft. below top of well Date 11/27/91
Artesian Pressure lbs. per square inch Date
Artesian water controlled by N/A

(9) WELL TESTS: Drawdown is amount water level is lowered below static level.
Was a pump test made? NO If yes, by whom?
Yield: gal./min with ft. drawdown after hrs.

Recovery data

Time	Water Level	Time	Water Level	Time	Water Level

Date of test / /
Bailer test gal/min. ft. drawdown after hrs.
Air test 25 gal/min. w/ stem set at 53 ft. for 1 hrs.
Artesian flow g.p.m. Date
Temperature of water 61 Was a chemical analysis made? YES

(10) WELL LOG

Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change in formation.

MATERIAL	FROM	TO
CLAY BROWN	0	1
CLAY GRITTY BROWN	1	8
GRAVEL BROWN	8	19
GRAVEL W/ SAND DARK BROWN	19	30
CLAY STICKY GREY	30	54
SAND COARSE GREY	54	59
CLAY SANDY DARK GREY	59	66
SAND GREY WATER BEARING	66	77
SANDY SILT GREY	77	81

Work started 11/25/91 Completed 11/27/91

WELL CONSTRUCTOR CERTIFICATION:
I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

NAME BOB EDGELL PUMP & DRILL.
(Person, firm, or corporation) (

EPA 001558

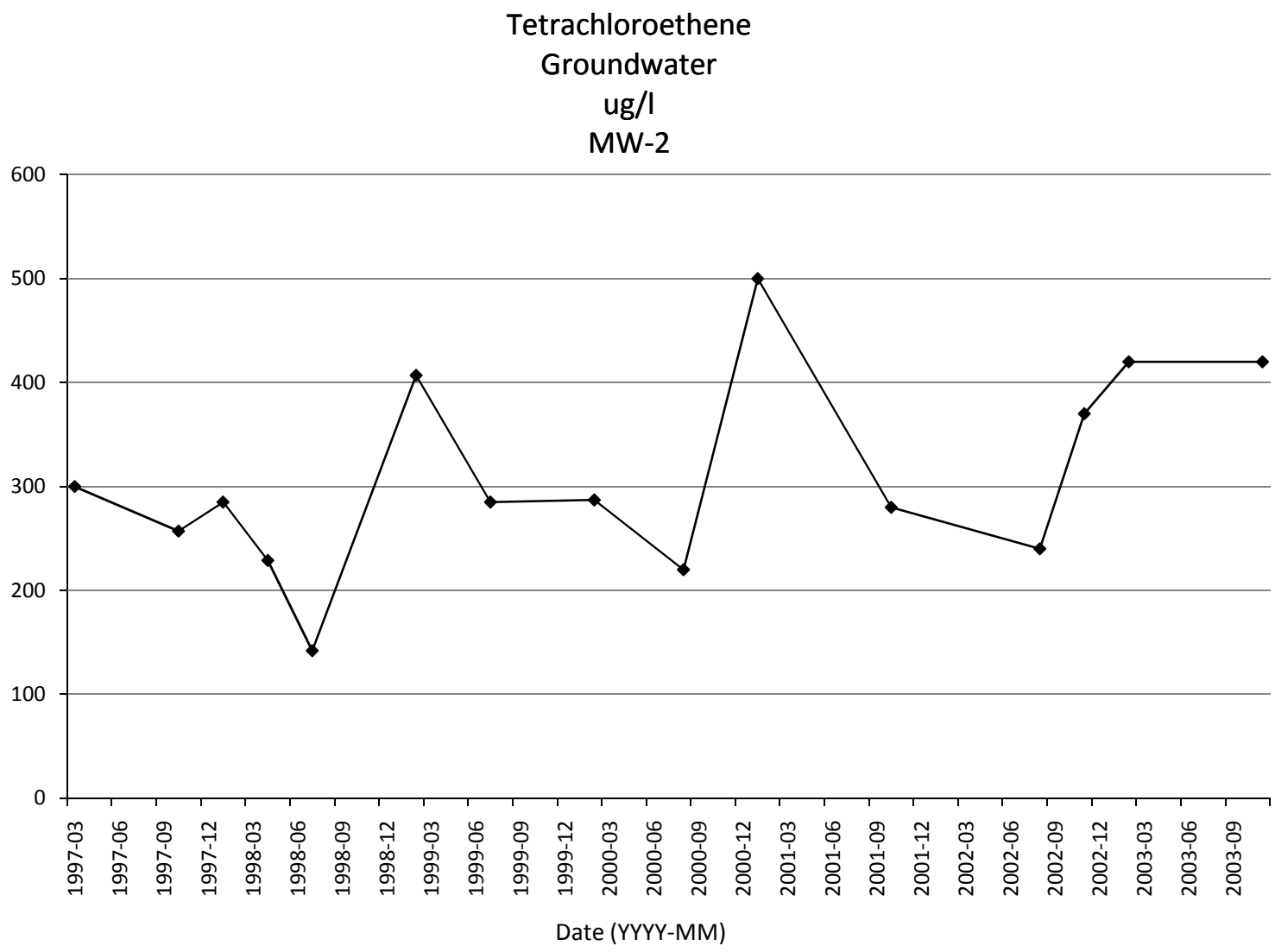
ADDRESS P O BX 665 CASTLE ROCK WA

[SIGNED] Bob Edgell License No. 116

Contractor's Registration No. BOBEDPU121OB Date 01/26/92

owner

Appendix F
Concentration Trend Plots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Groundwater
ug/l
MW-2
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400
300
200
100
0
1997-03
1997-06
1997-09
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1998-03
1998-06
1998-09
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1999-03
1999-06
1999-09
1999-12
2000-03
2000-06
2000-09
2000-12
2001-03
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2003-06
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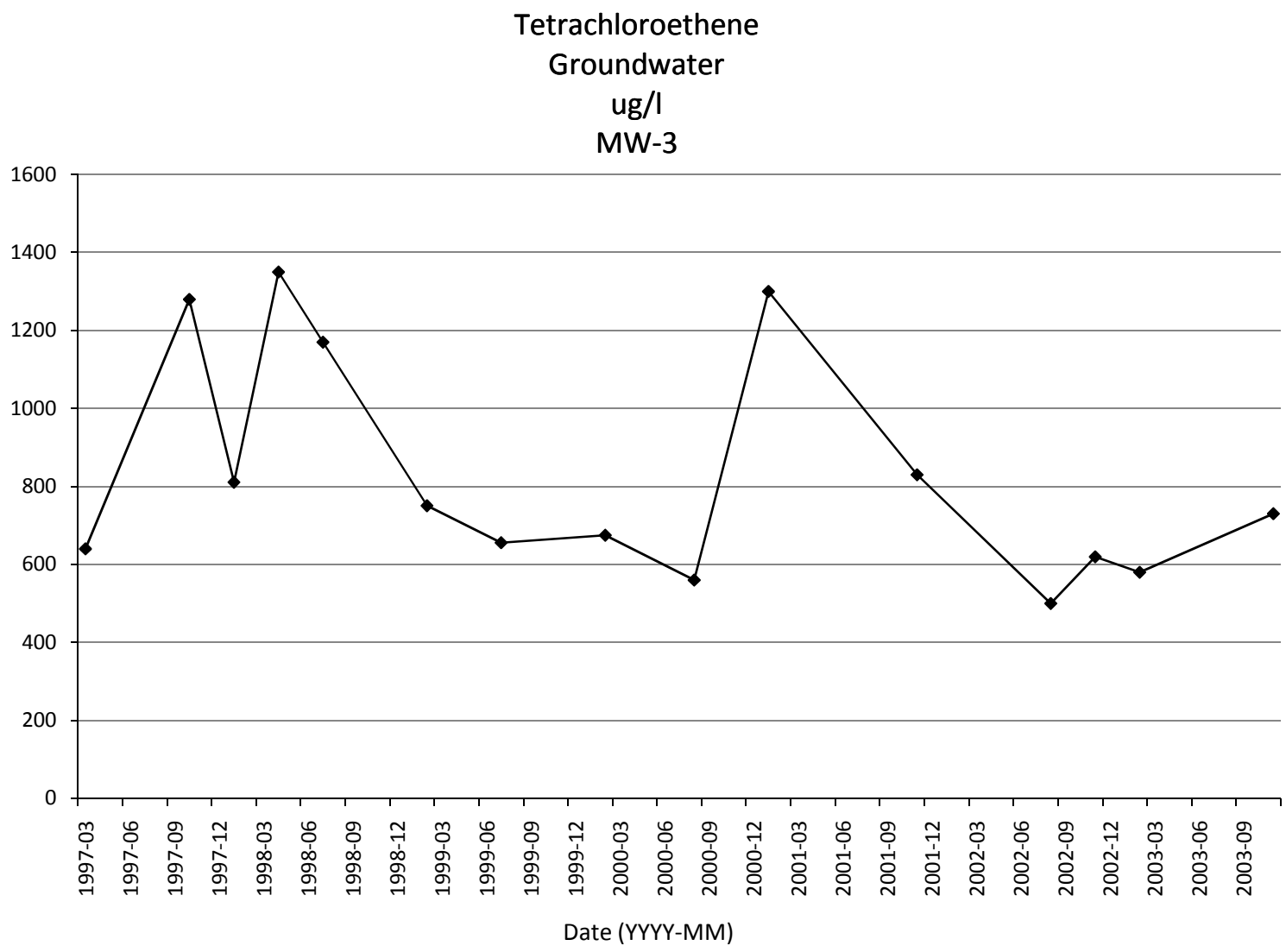
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2000-03
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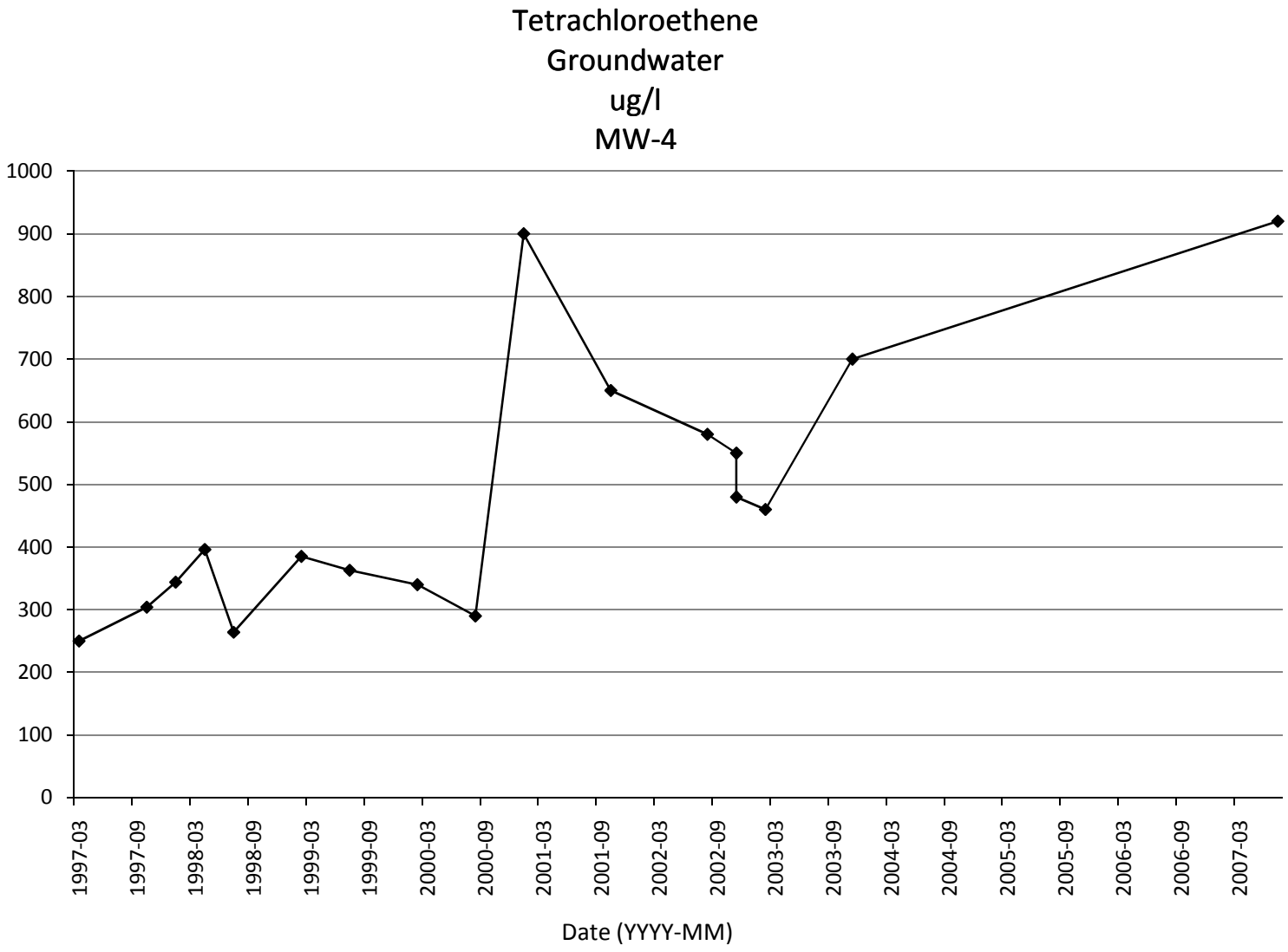
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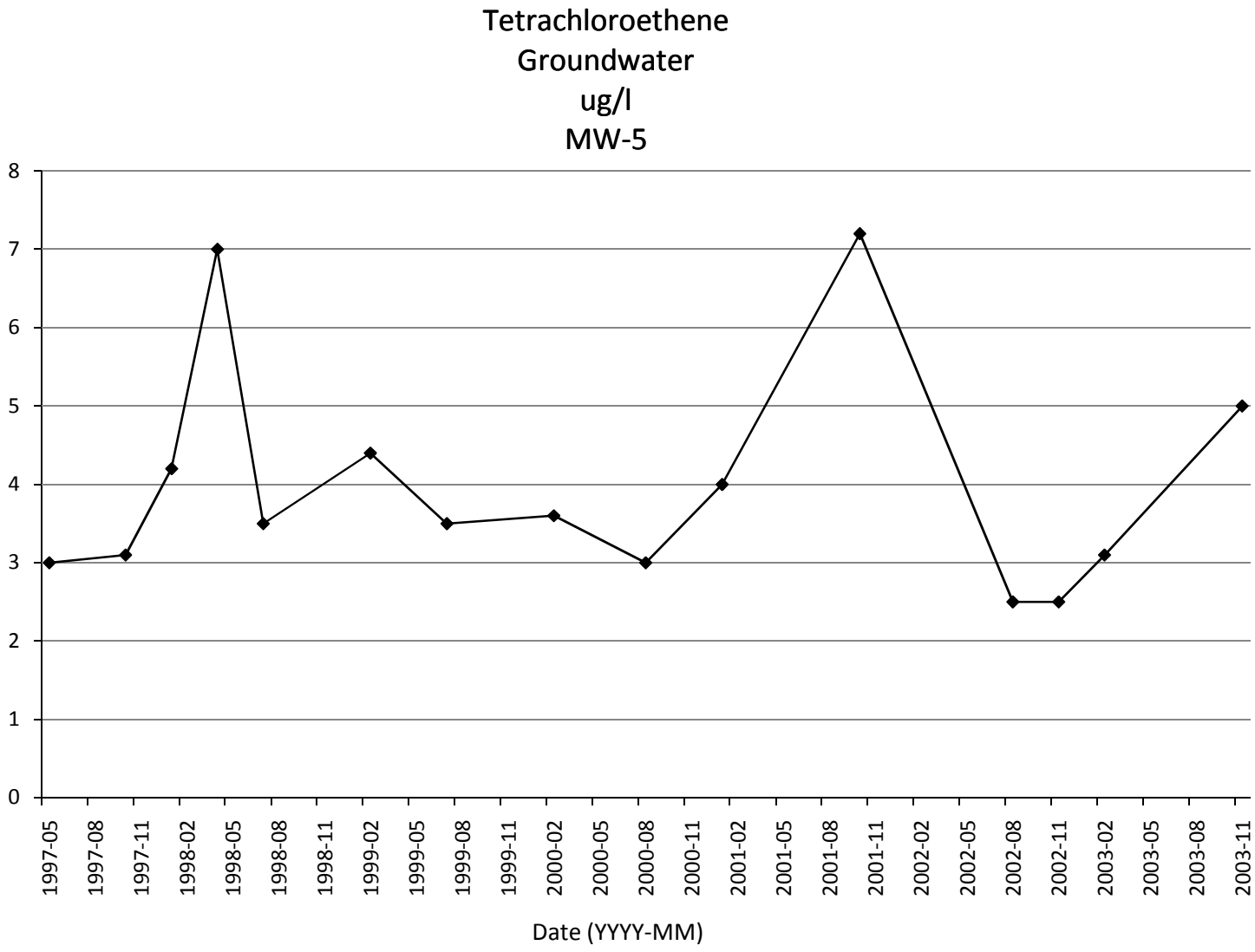
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MW-5
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7
6
5
4
3
2
1
0
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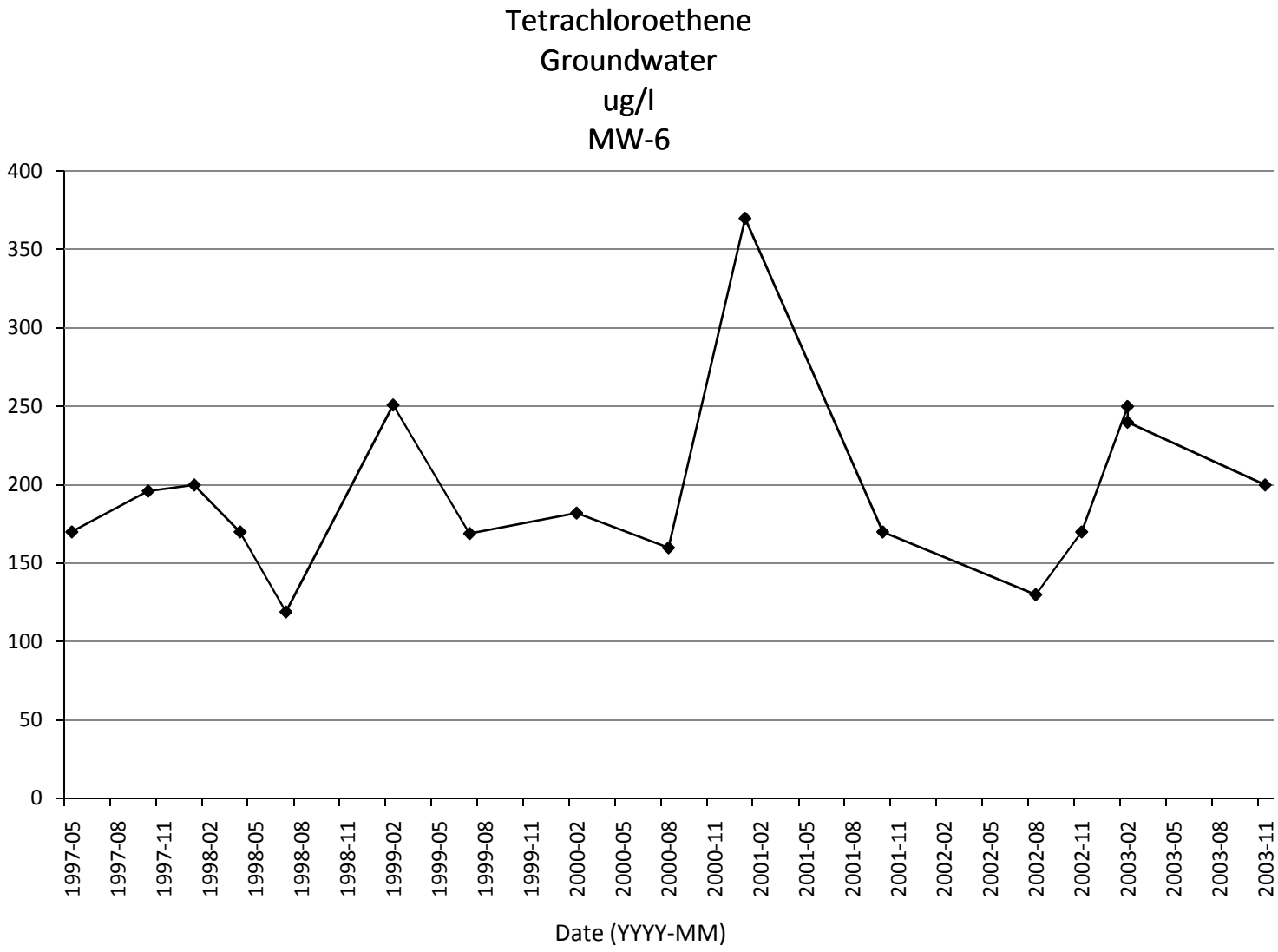
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250
200
150
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1998-02
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1999-05
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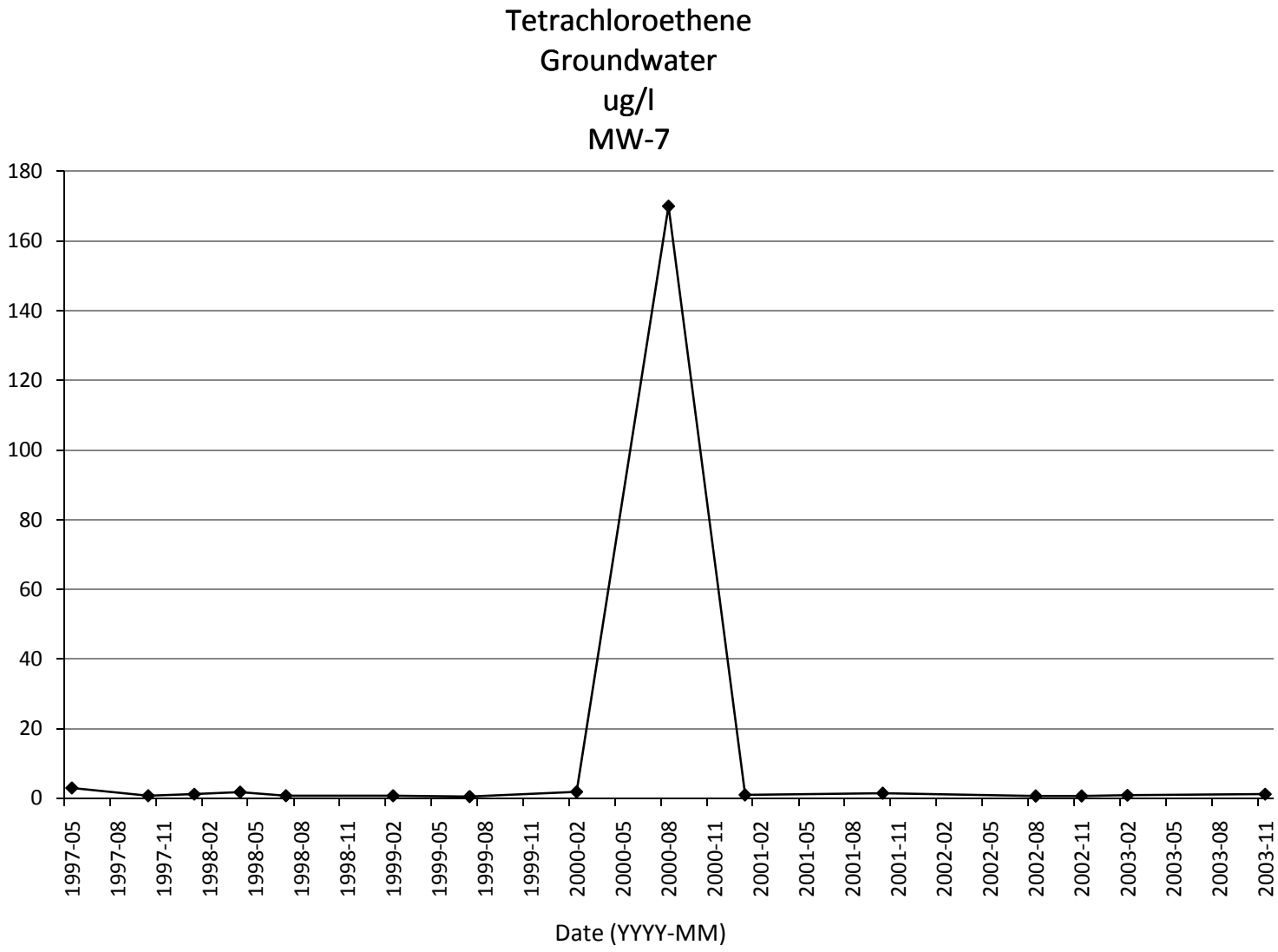
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MW-7
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80
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20
0
1997-05
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1997-11
1998-02
1998-05
1998-08
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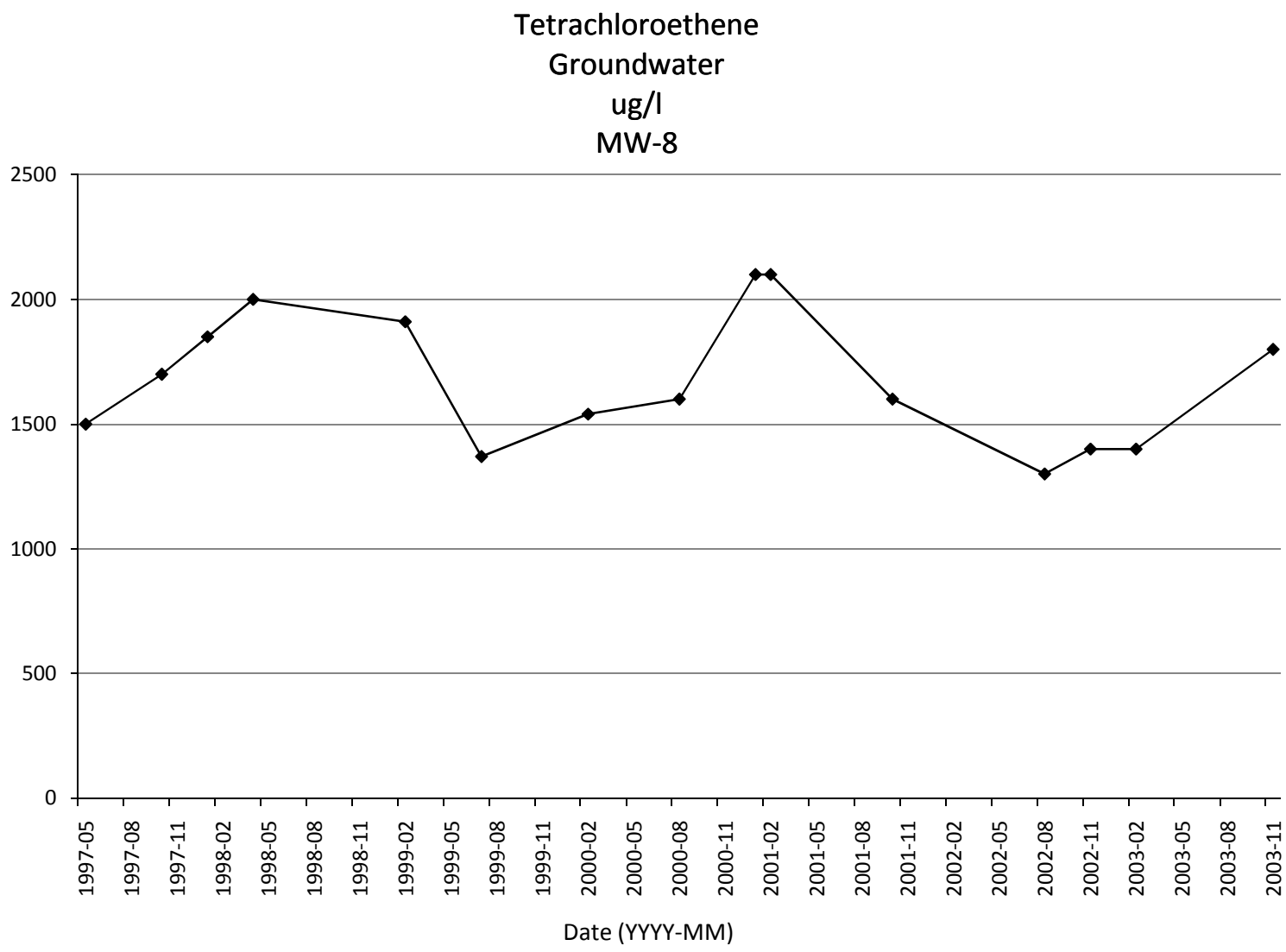
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2000-02
2000-05
2000-08
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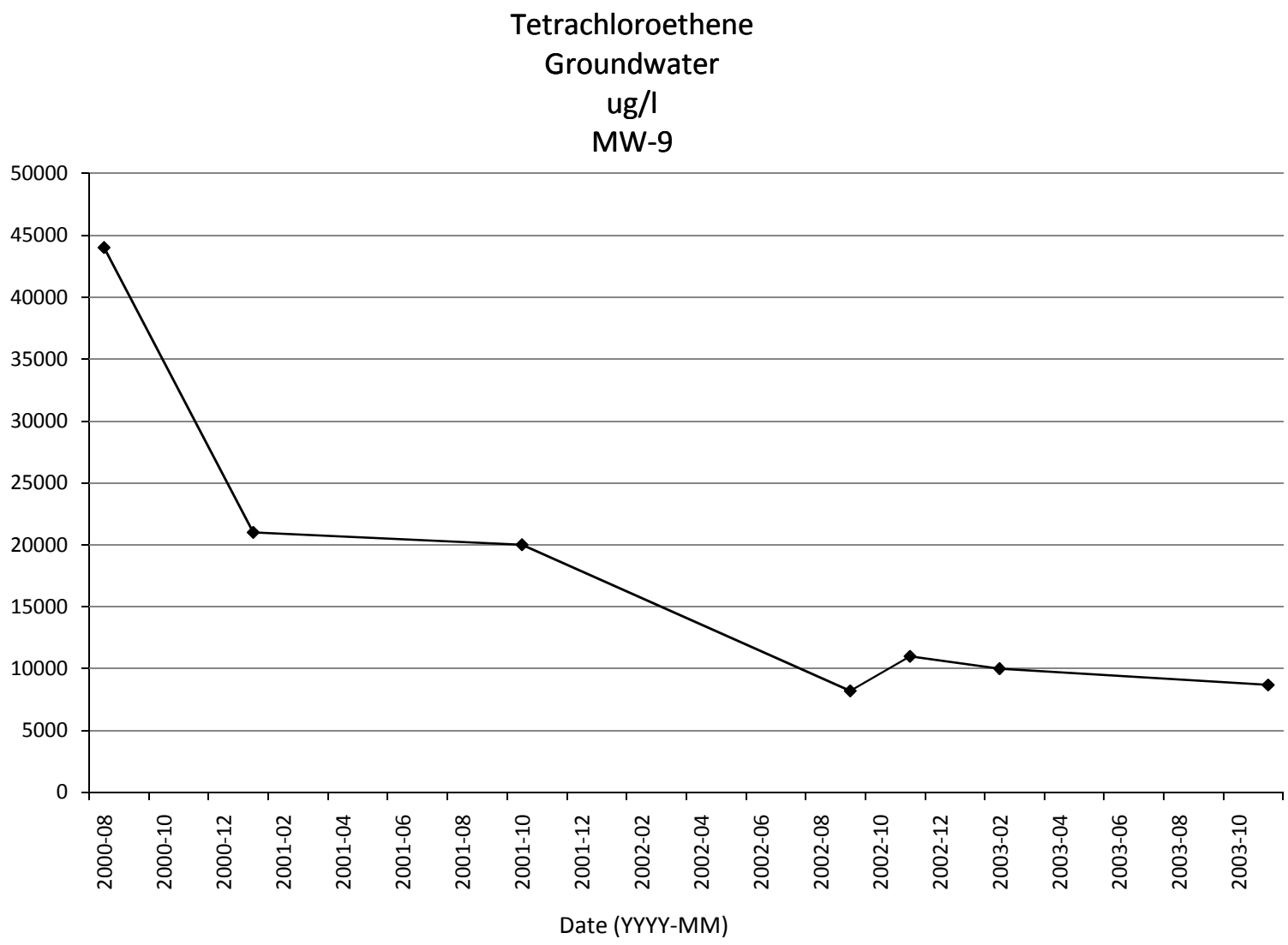
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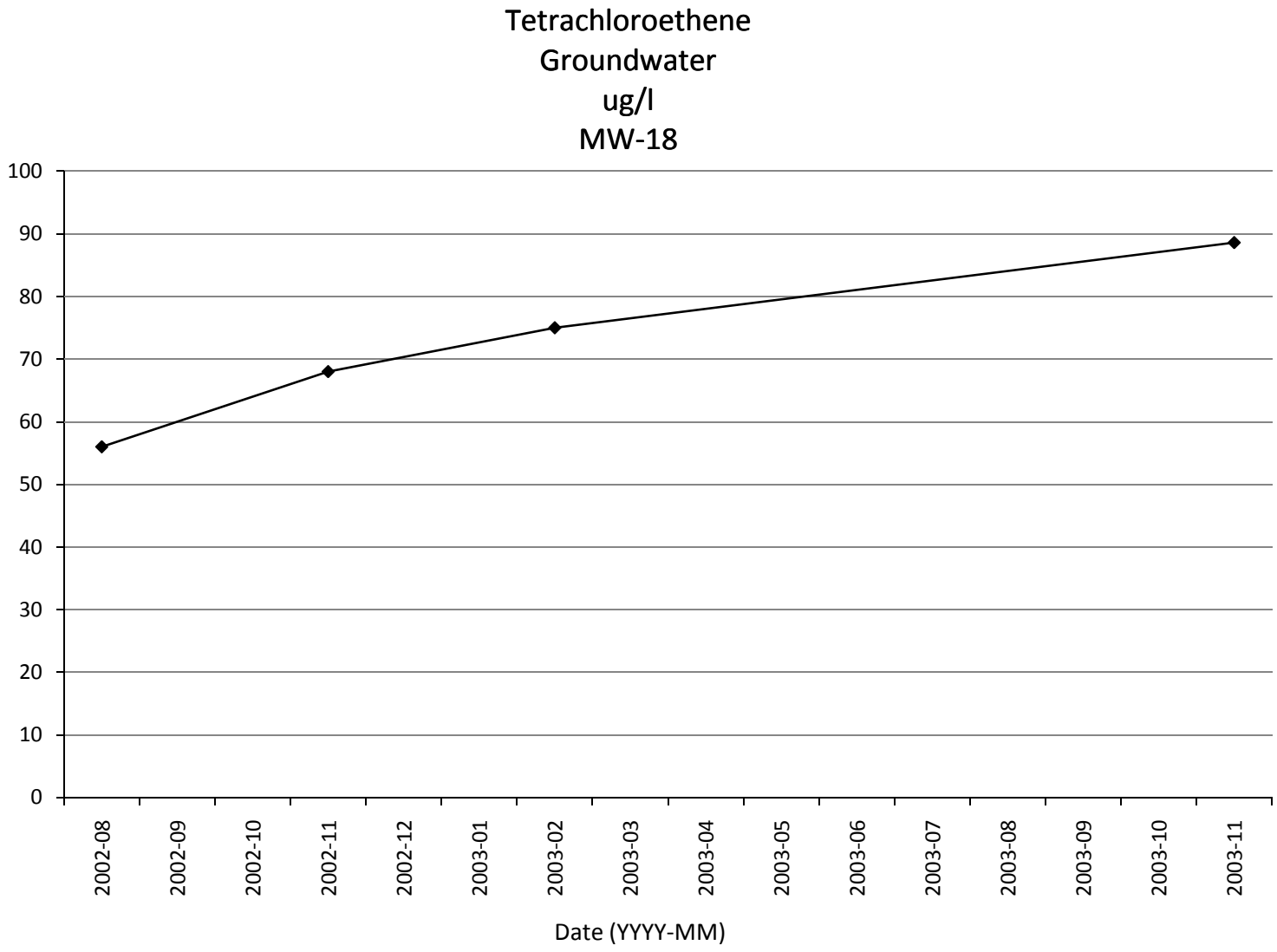
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MW-18
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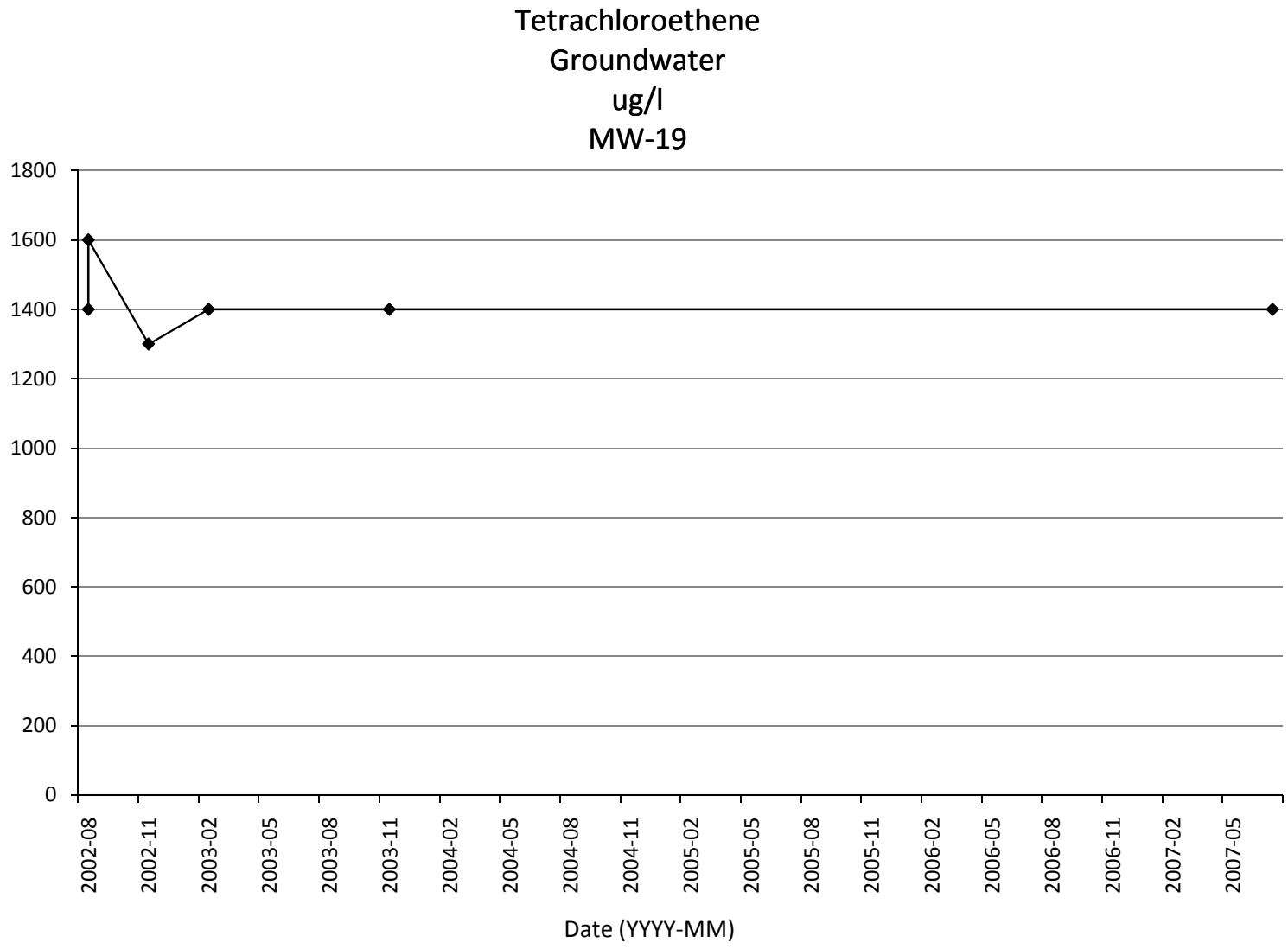
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Groundwater
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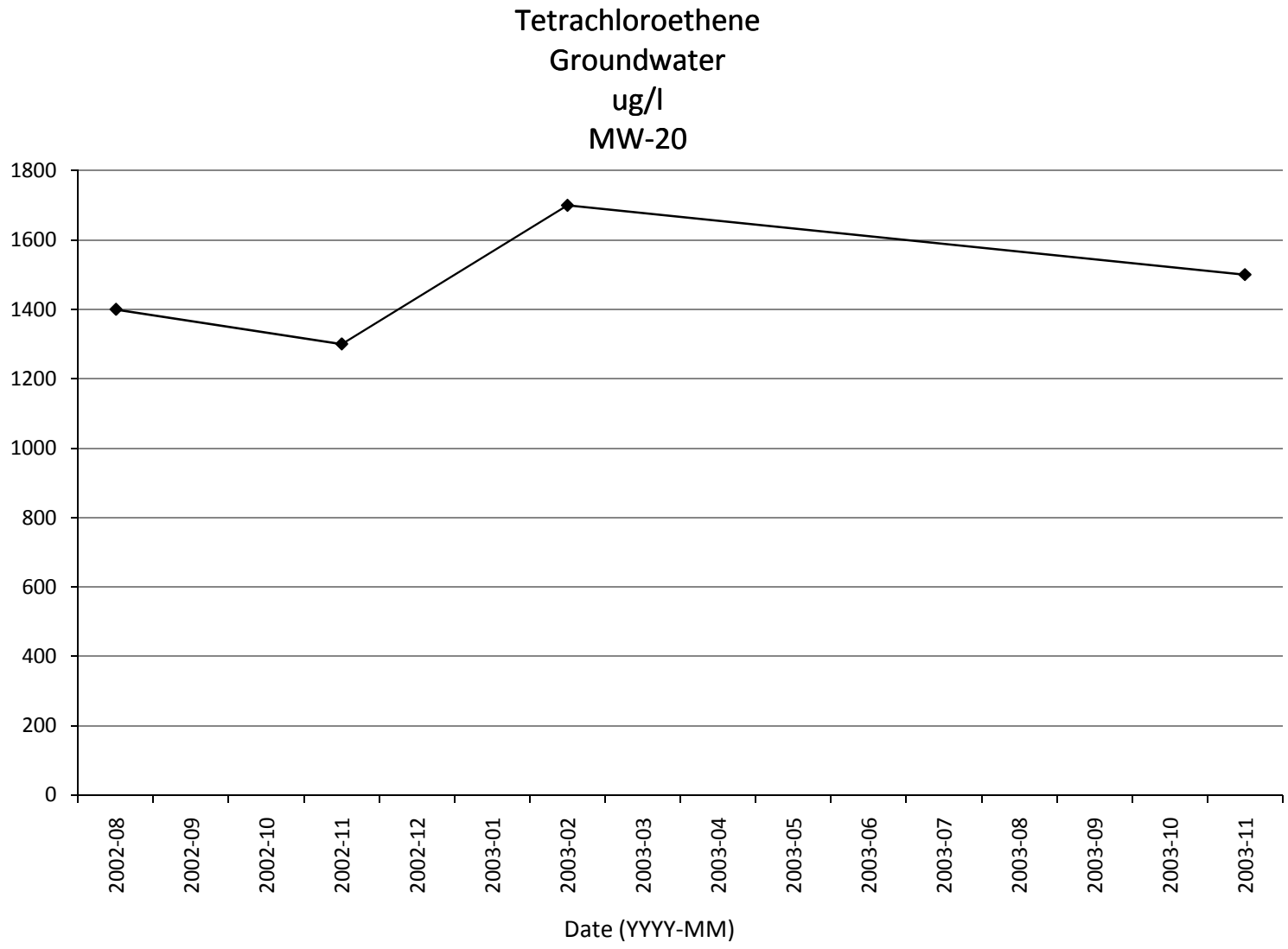
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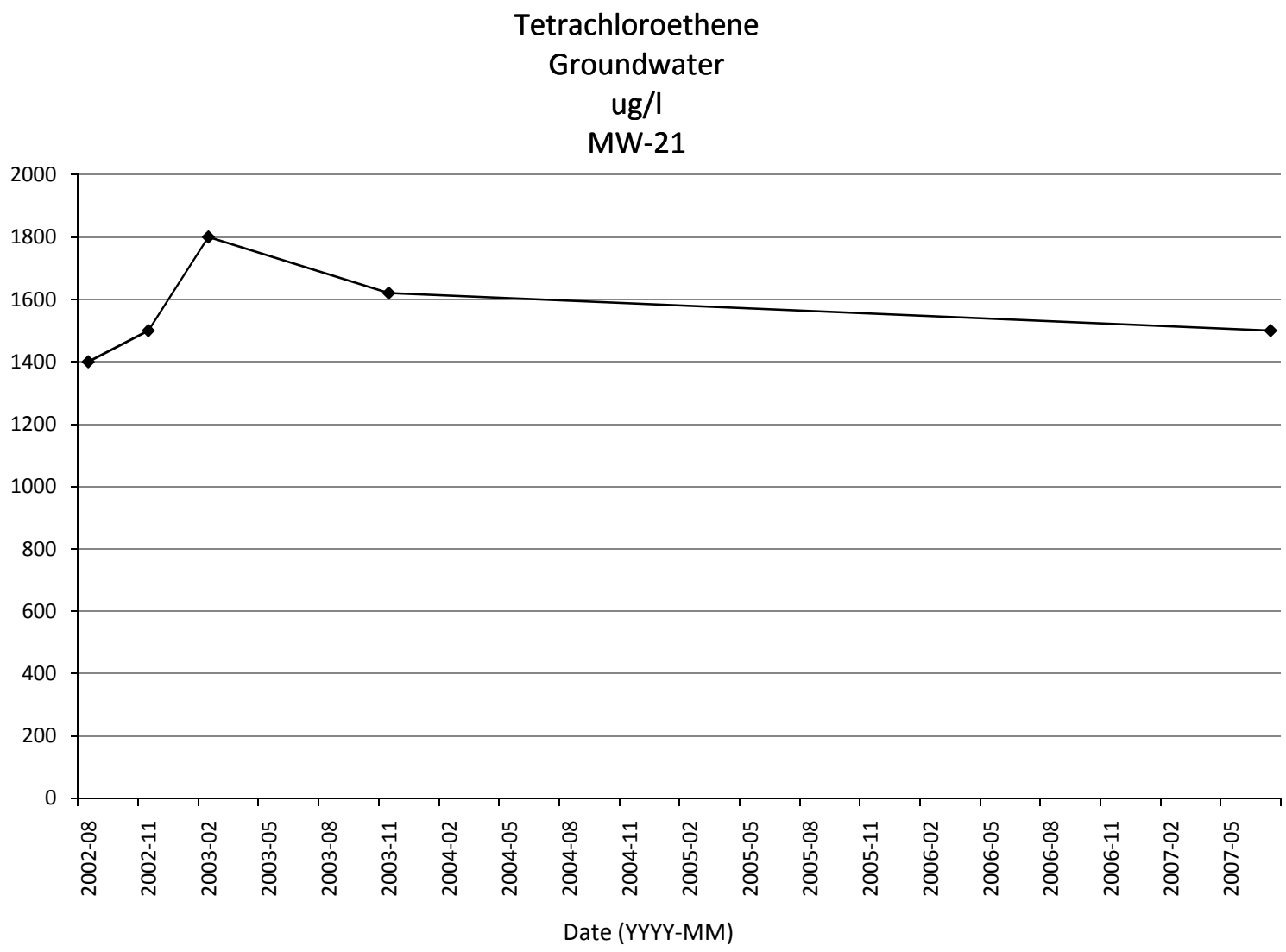
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MW-21
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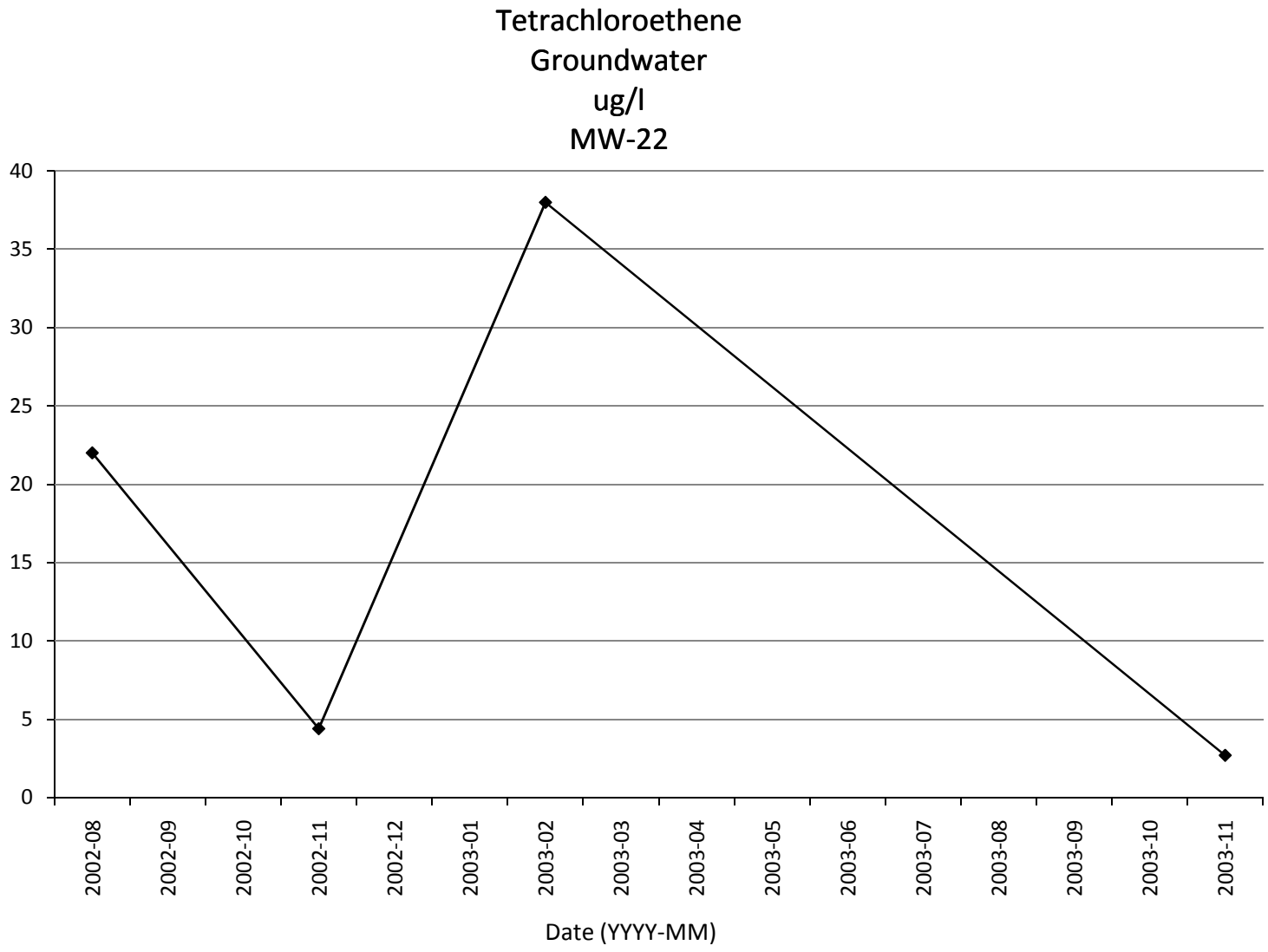
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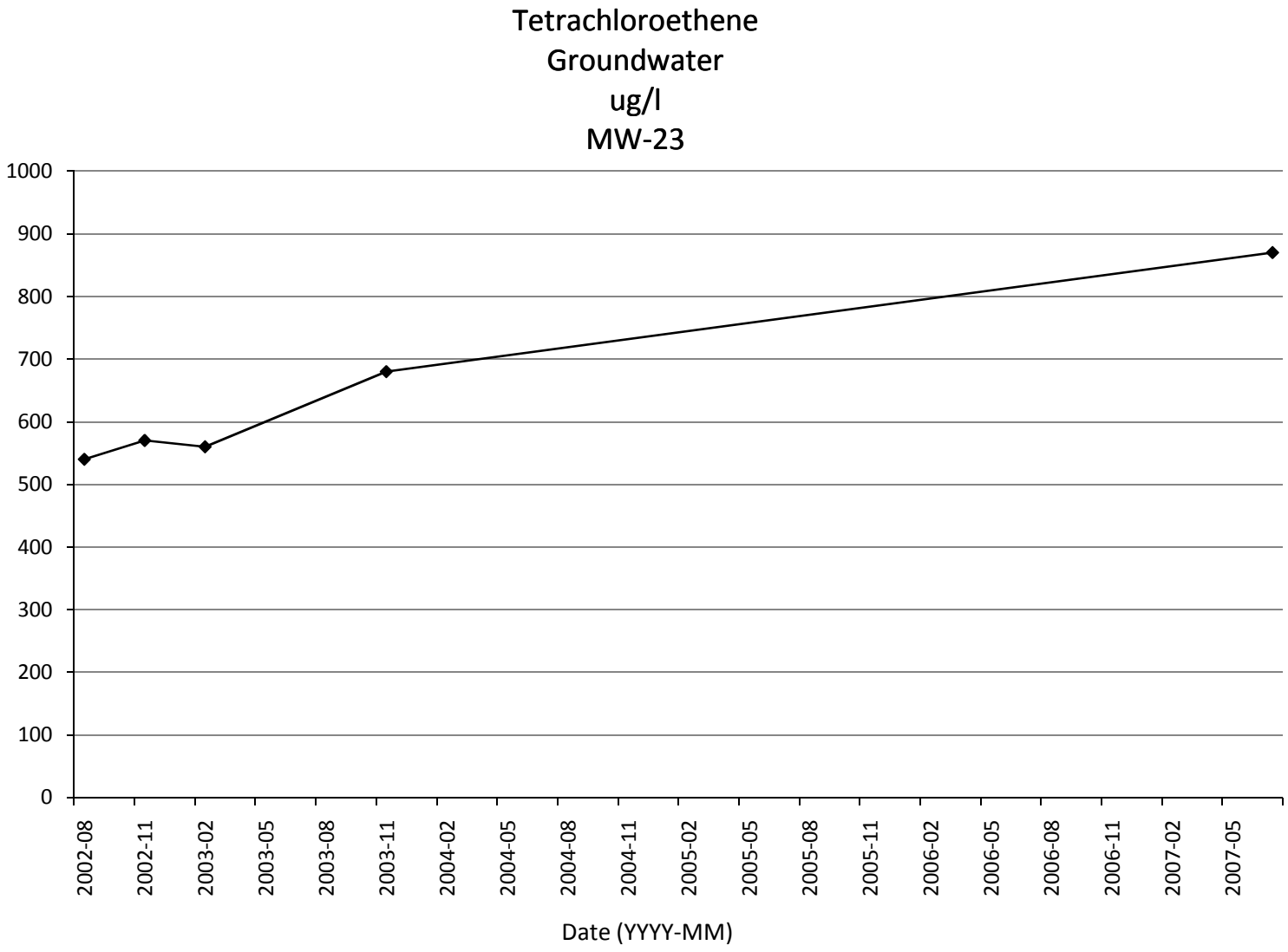
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2003-02
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2004-02
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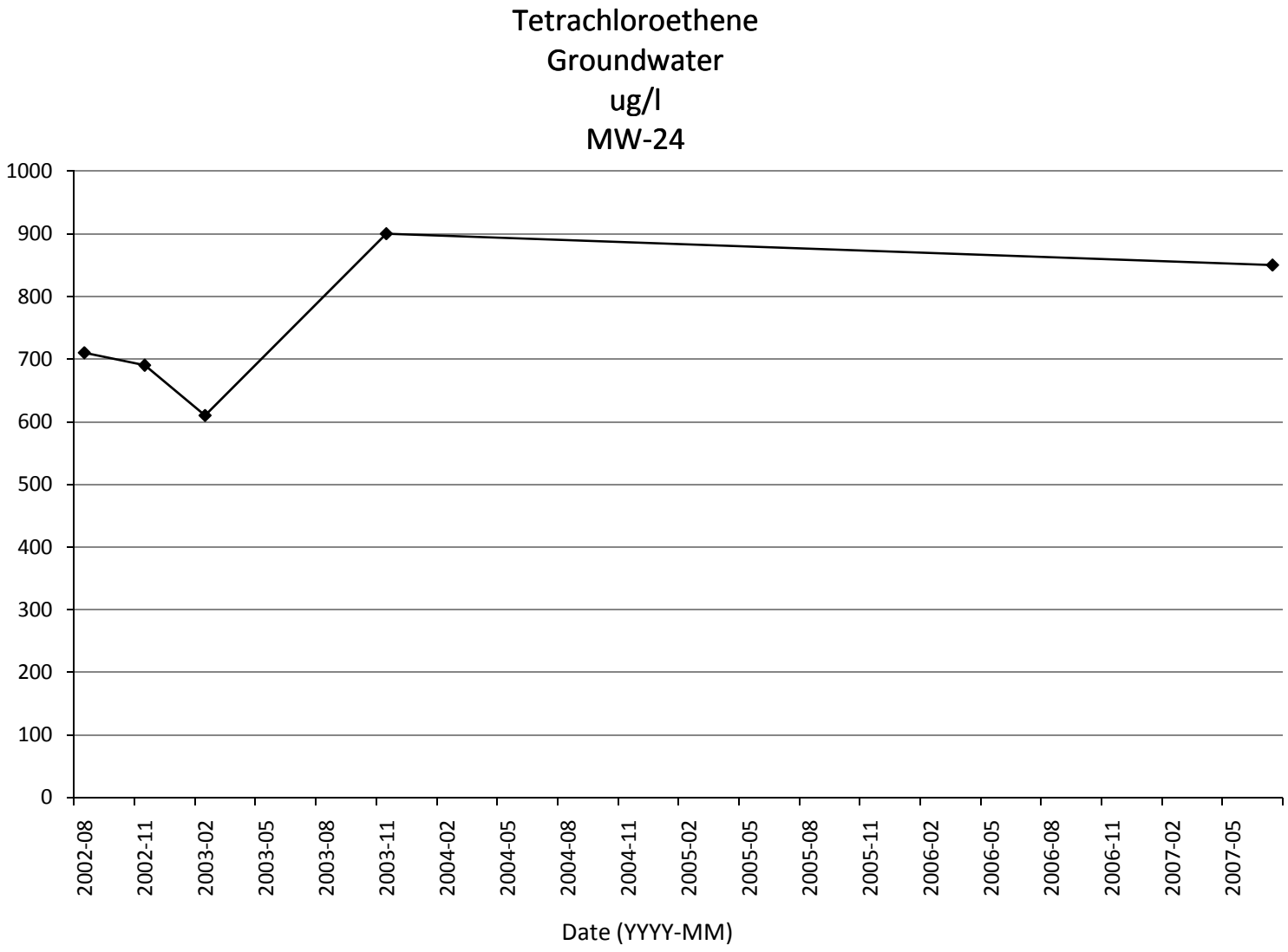
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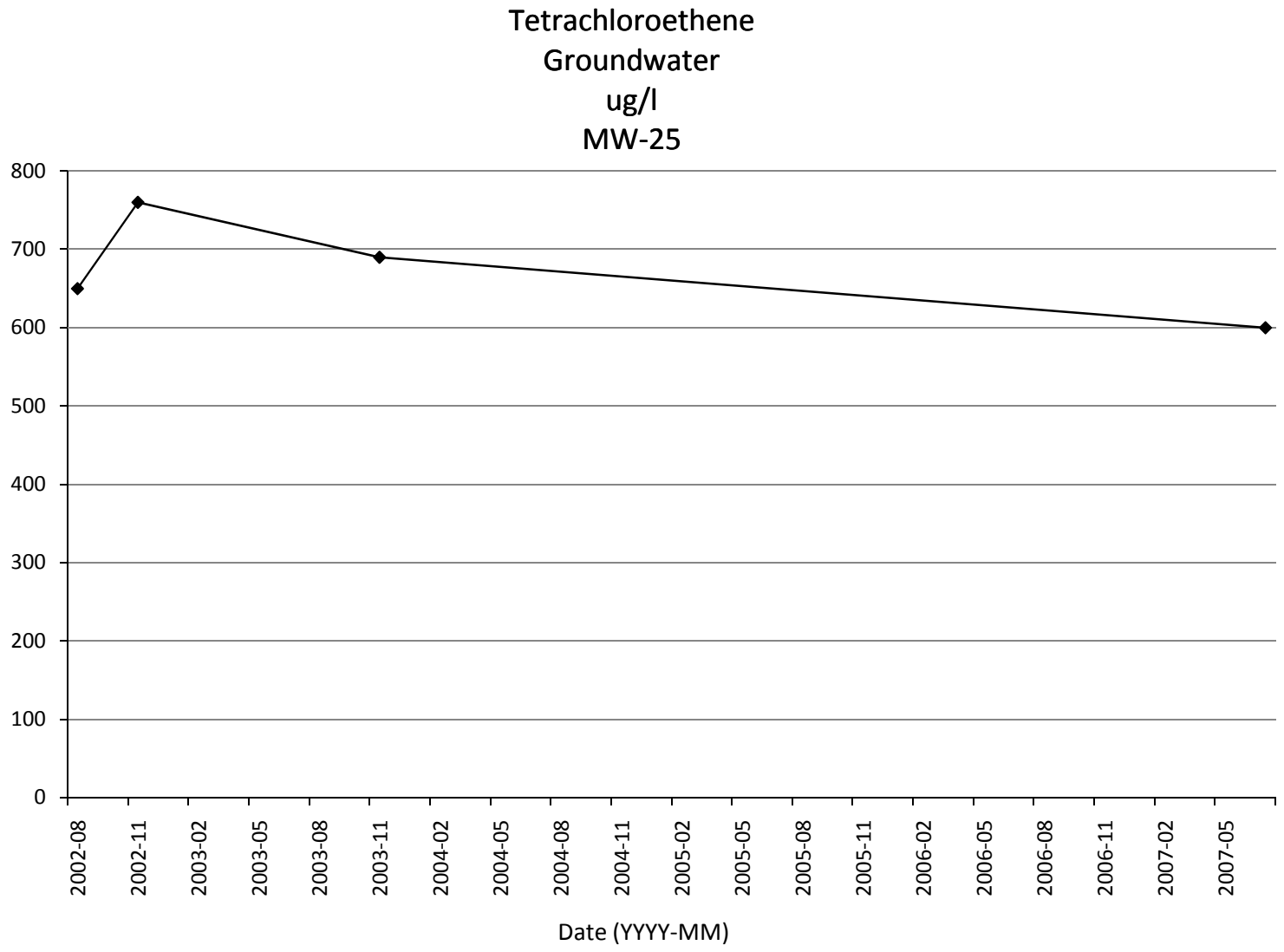
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MW-25
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600
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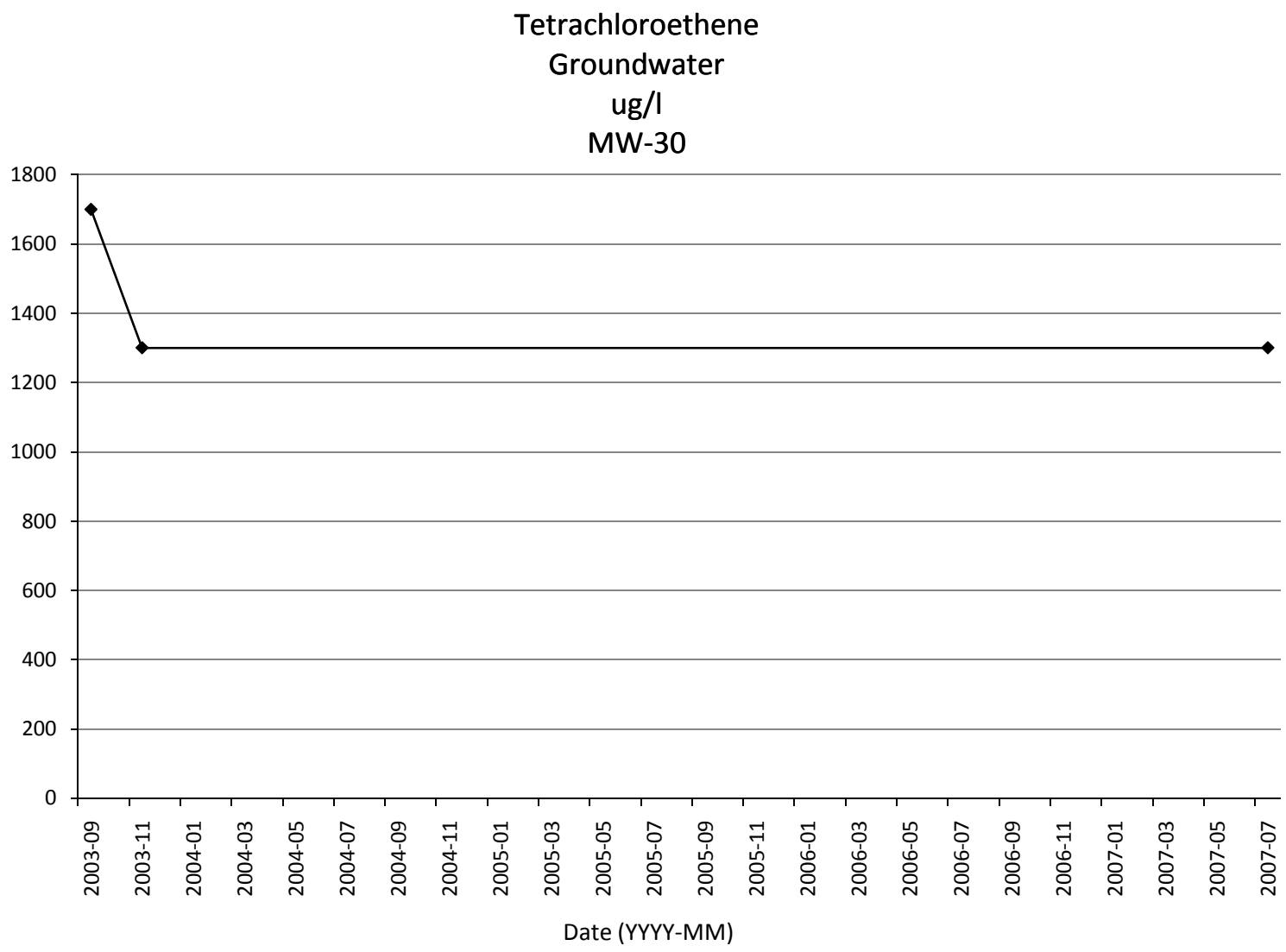
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MW-30
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1400
1200
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2005-03
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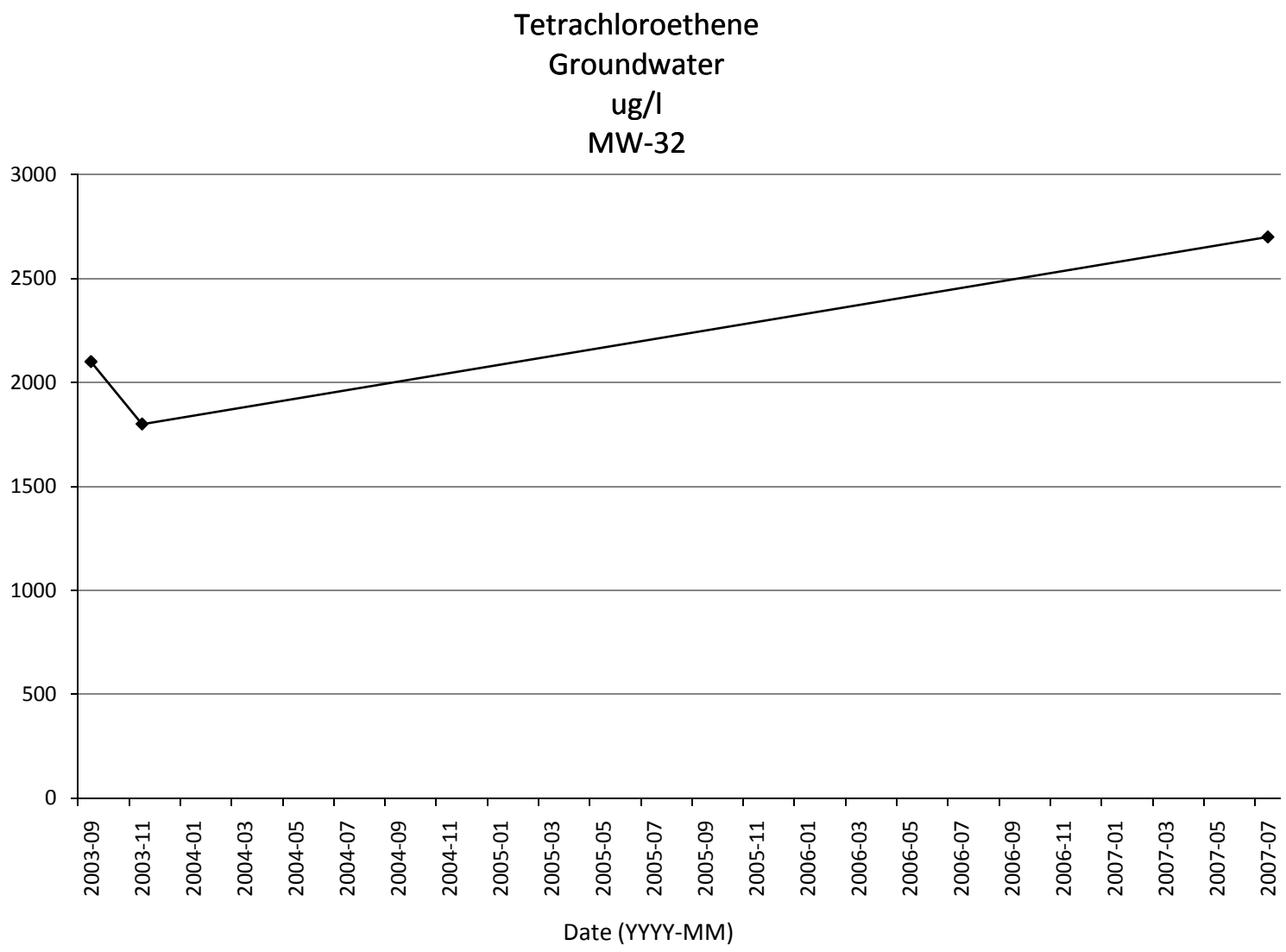
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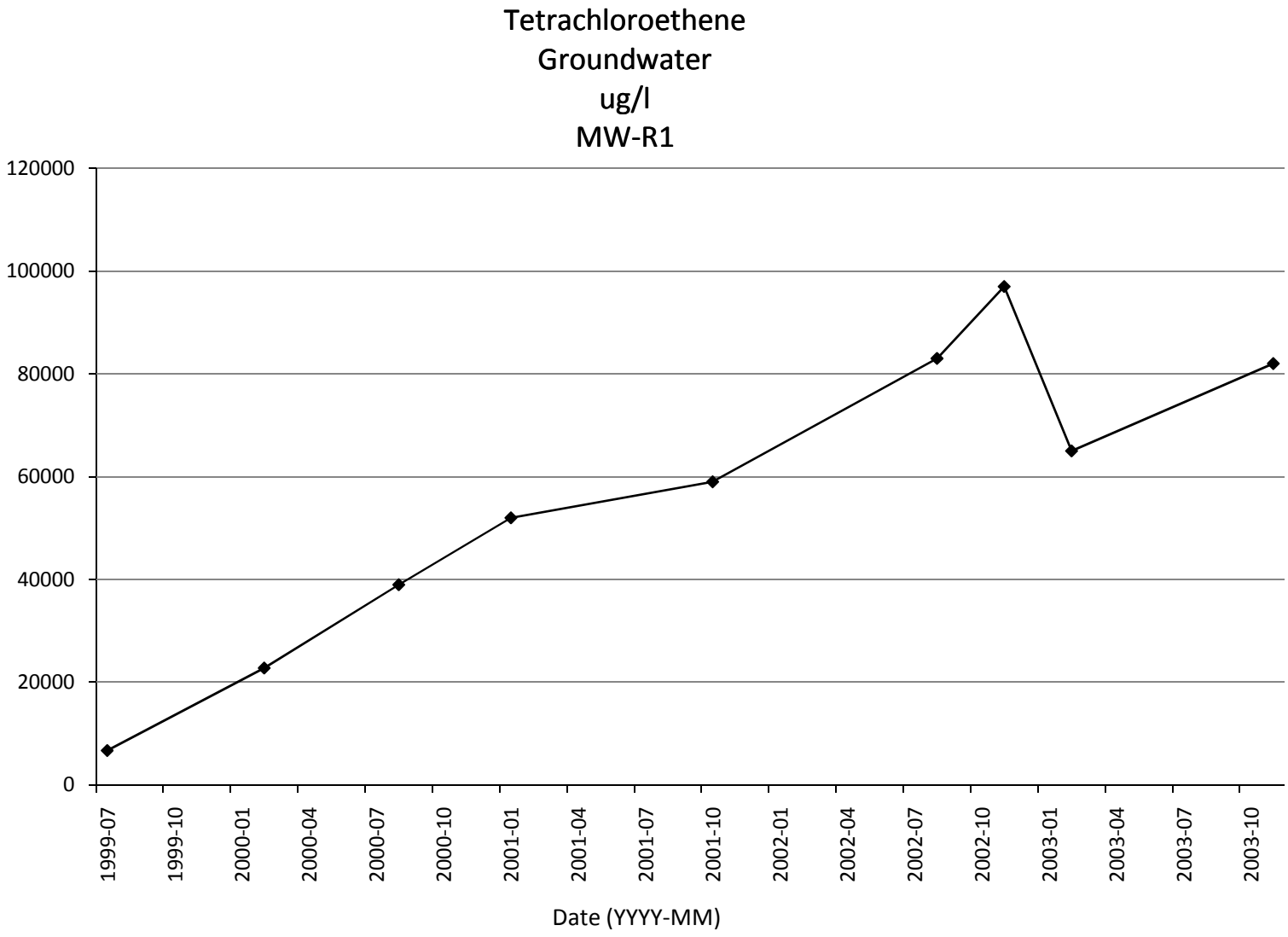
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2000-04
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2000-10
2001-01
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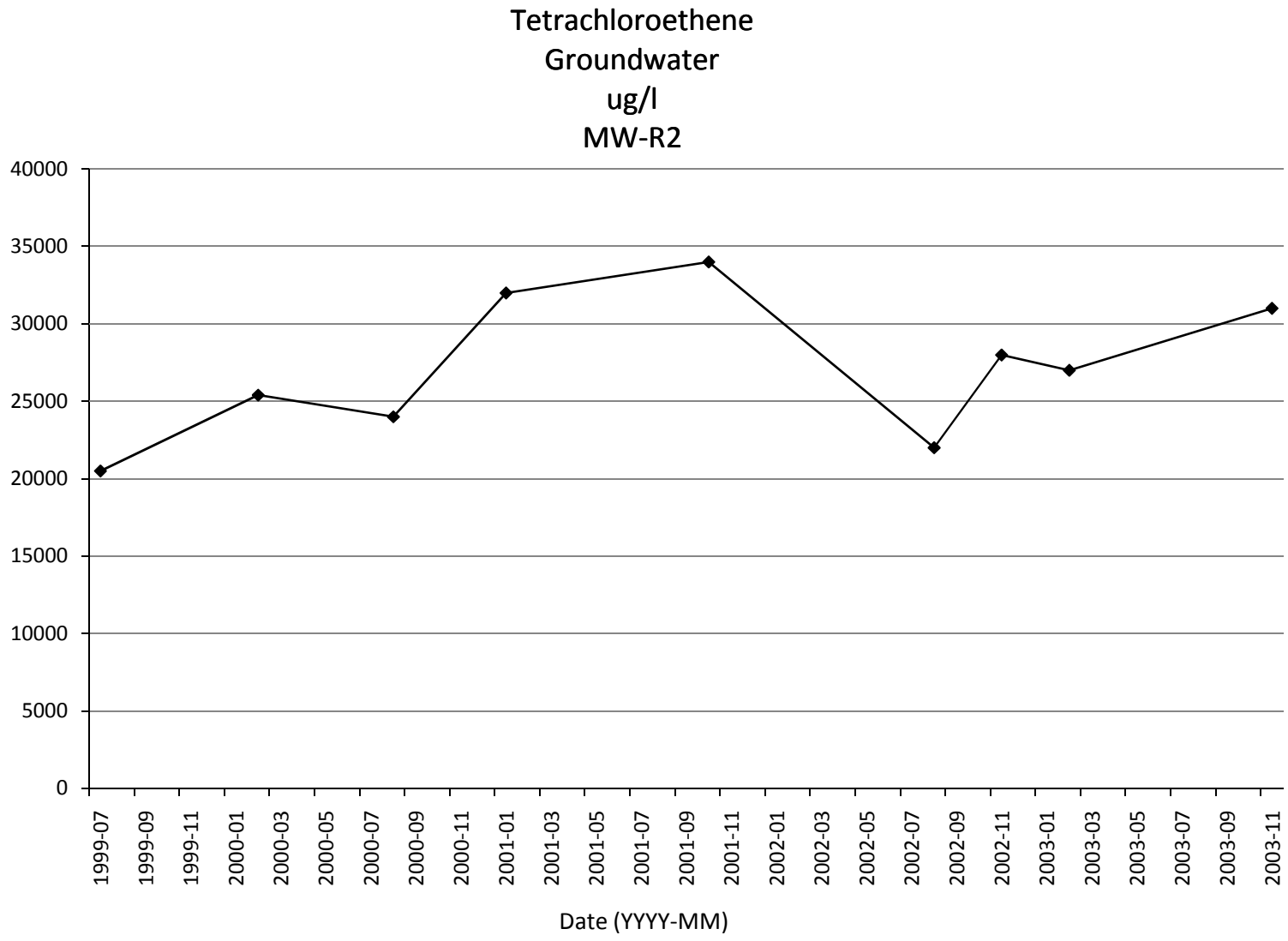
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Groundwater
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MW-R2
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10000
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1999-09
1999-11
2000-01
2000-03
2000-05
2000-07
2000-09
2000-11
2001-01
2001-03
2001-05
2001-07
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2003-11
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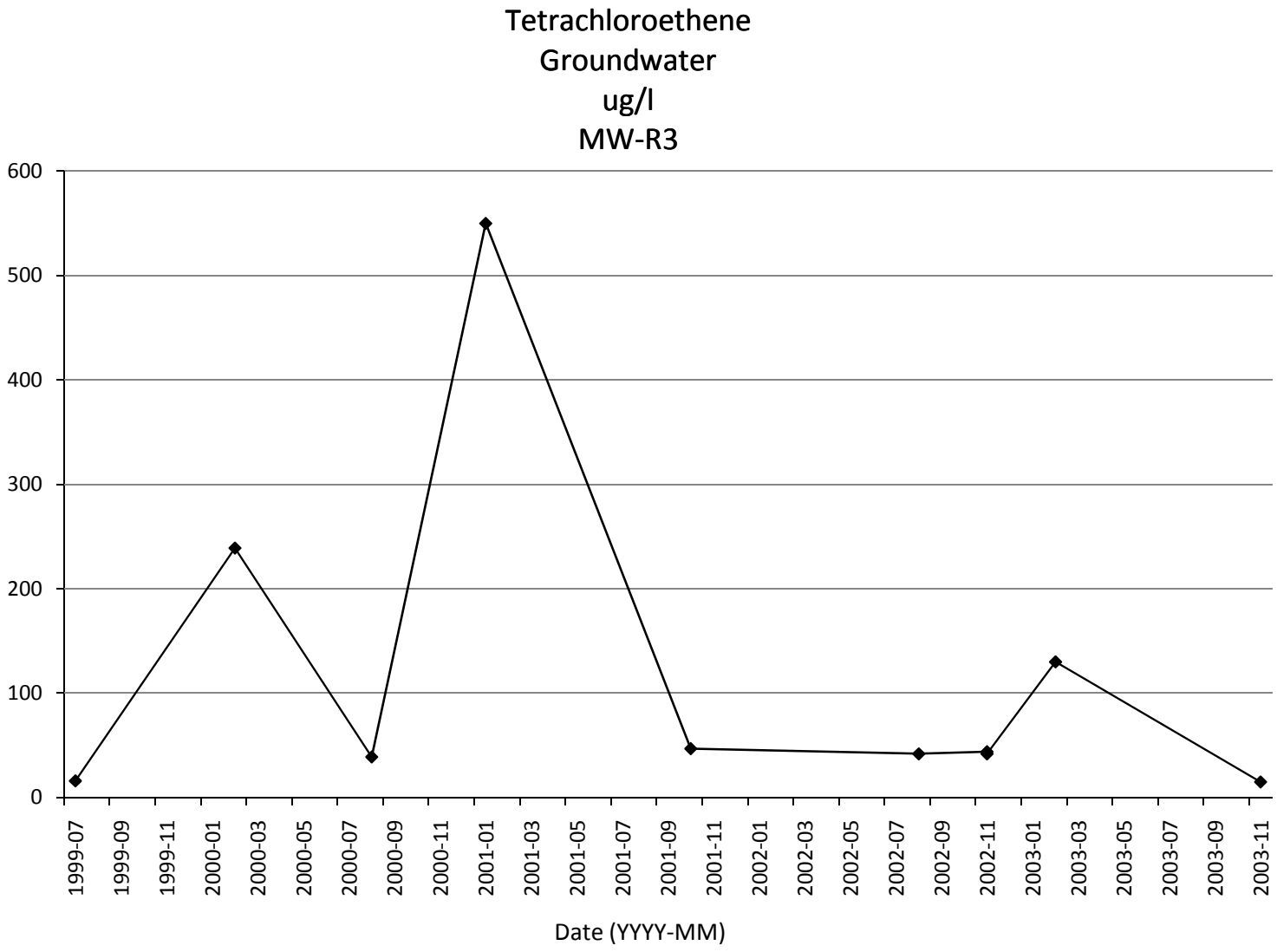
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MW-R3
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2000-01
2000-03
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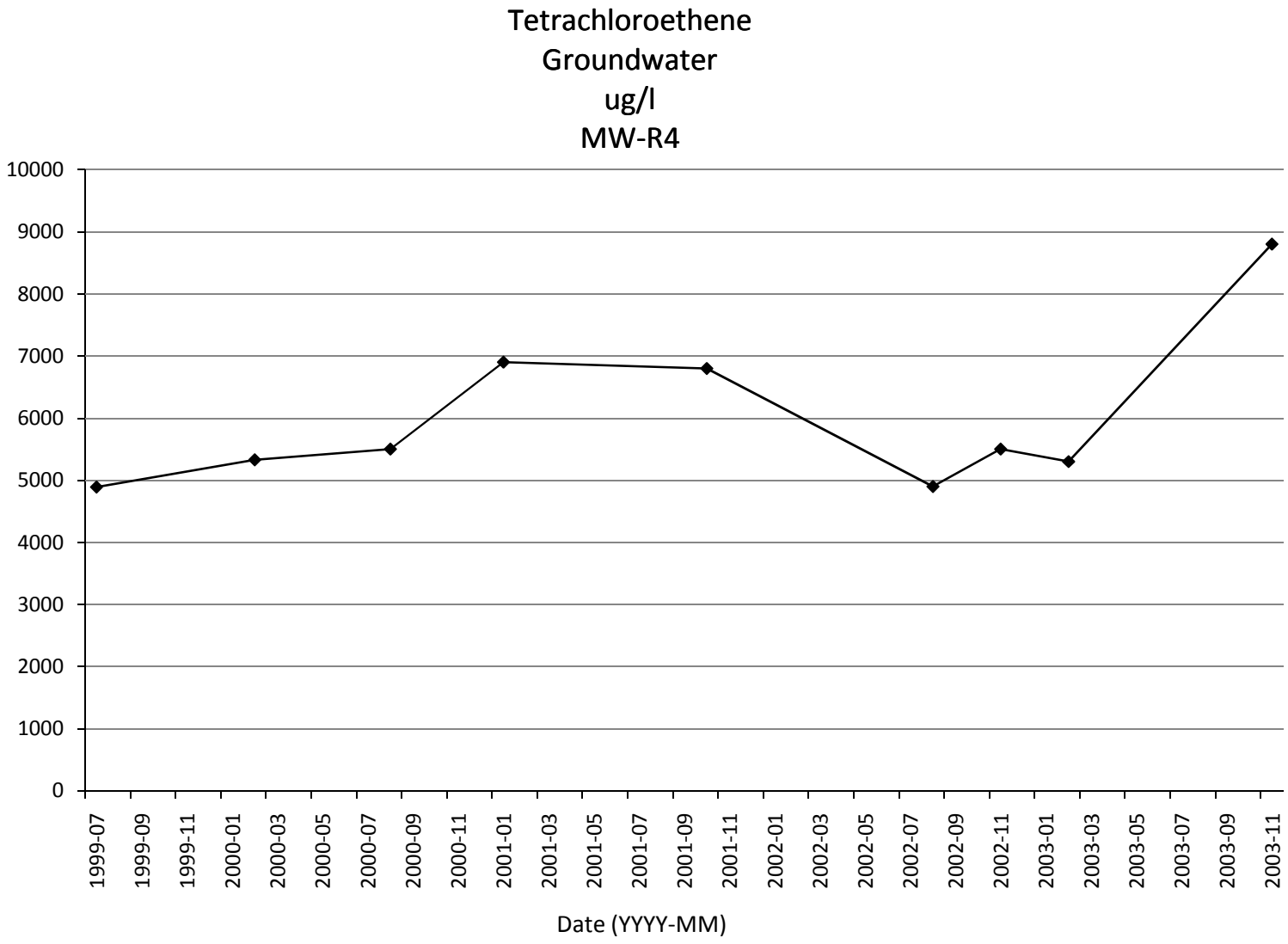
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ug/l
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8000
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1999-09
1999-11
2000-01
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2000-07
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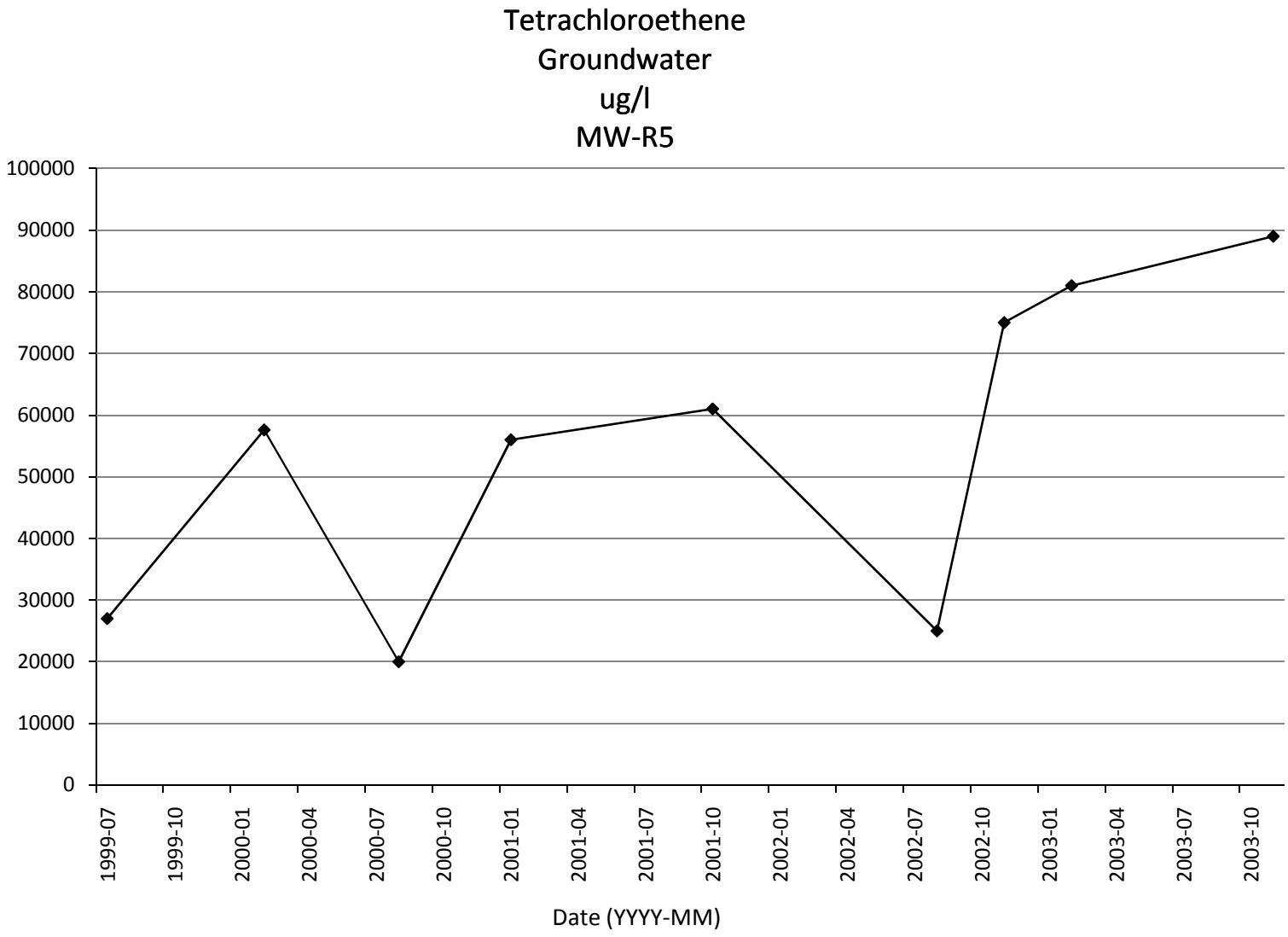
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Groundwater
ug/l
MW-R5
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80000
70000
60000
50000
40000
30000
20000
10000
0
1999-07
1999-10
2000-01
2000-04
2000-07
2000-10
2001-01
2001-04
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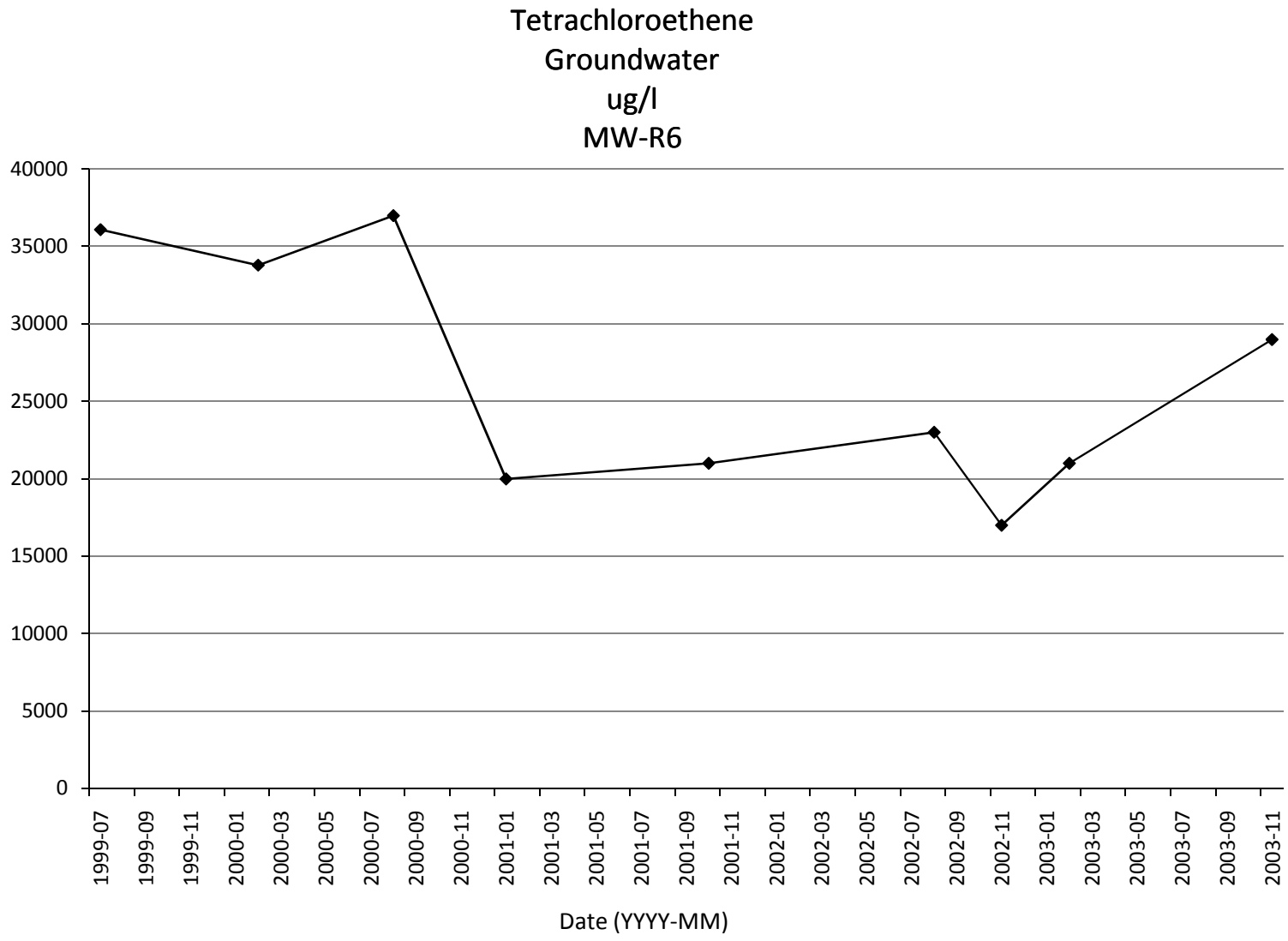
2003-04
2003-07
2003-10
Date (YYYY-MM)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Groundwater
ug/l
MW-R6
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30000
25000
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15000
10000
5000
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1999-09
1999-11
2000-01
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2000-05
2000-07
2000-09
2000-11
2001-01
2001-03
2001-05
2001-07
2001-09
2001-11
2002-01
2002-03
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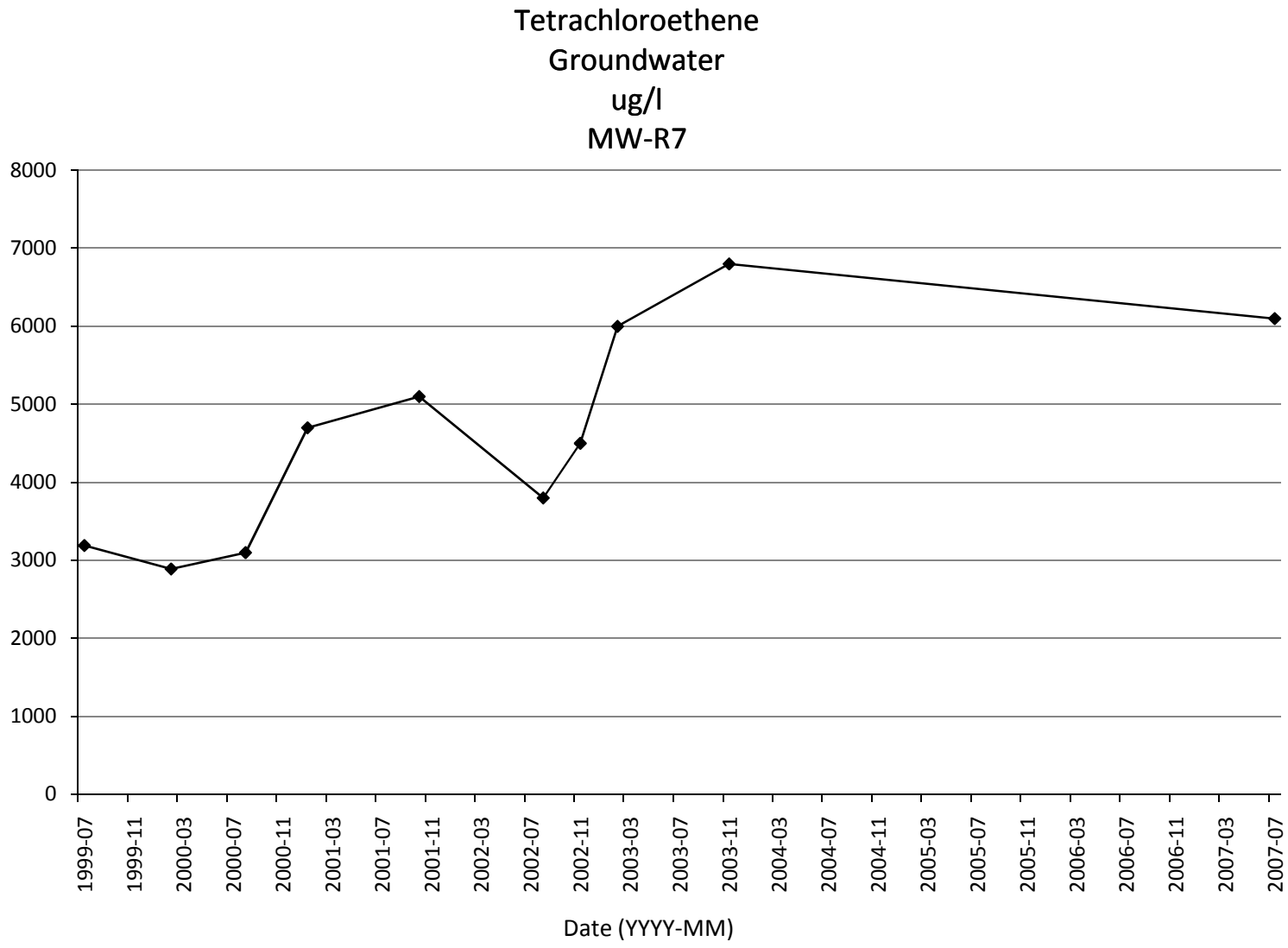
2003-07
2003-09
2003-11
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
MW-R7
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6000
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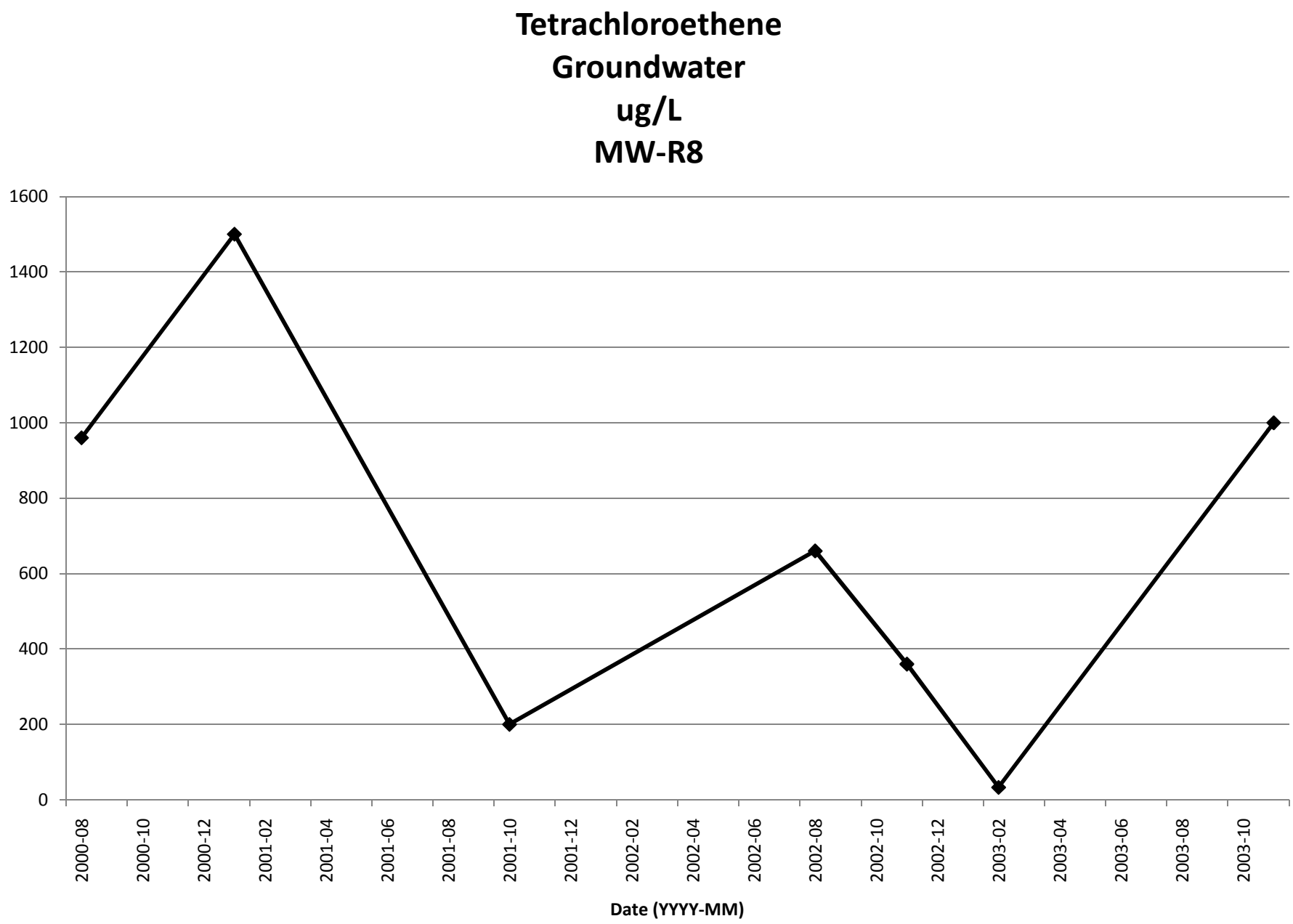
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Groundwater
ug/L
MW-R8
1600
1400
1200
1000
800
600
400
200
0
2000-08
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2000-12
2001-02
2001-04
2001-06
2001-08
2001-10
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2002-02
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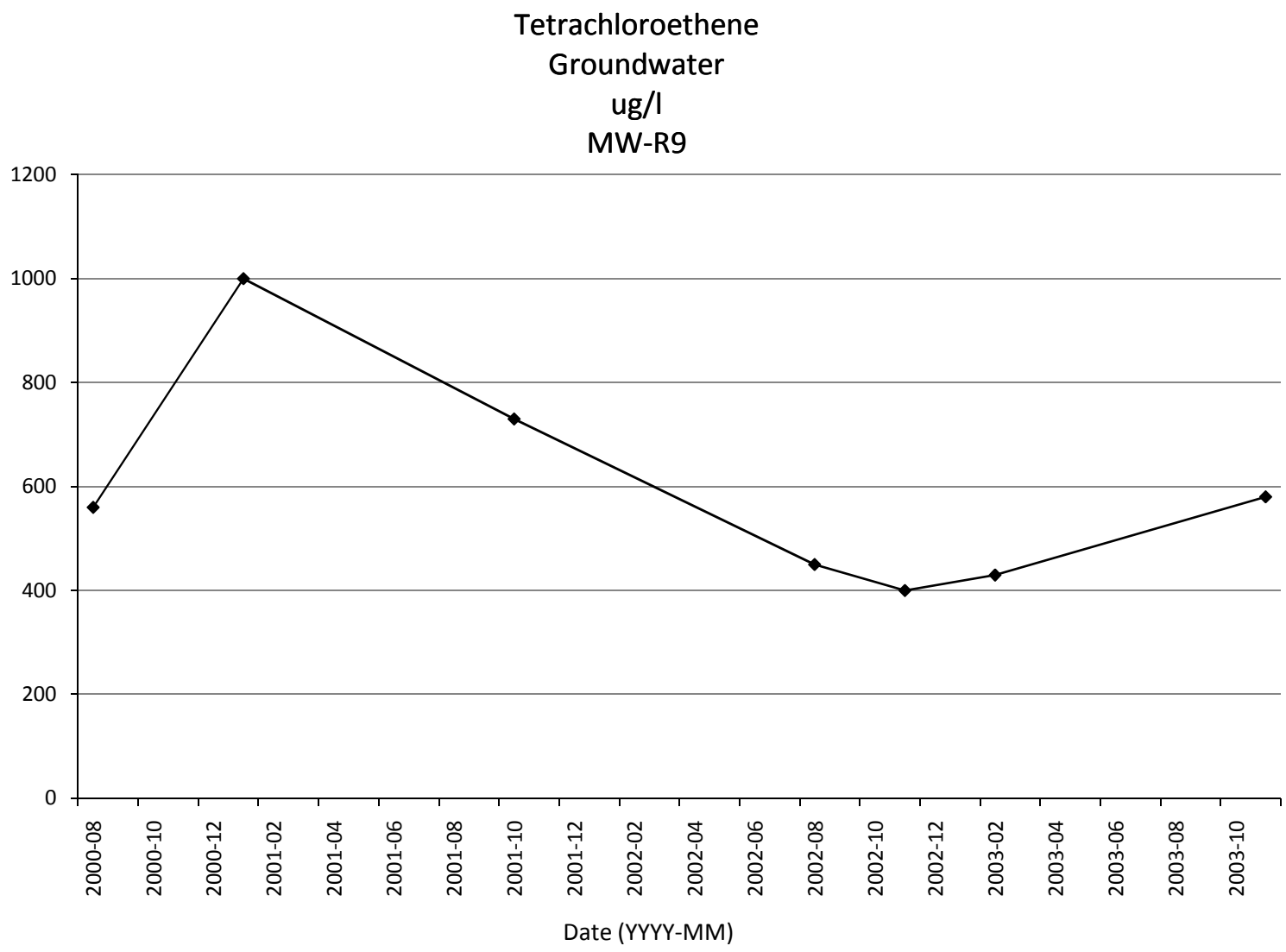
Tetrachloroethene
Groundwater
ug/l
MW-R9
1200
1000
800
600
400
200
0
2000-08
2000-10
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2001-04
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2001-08
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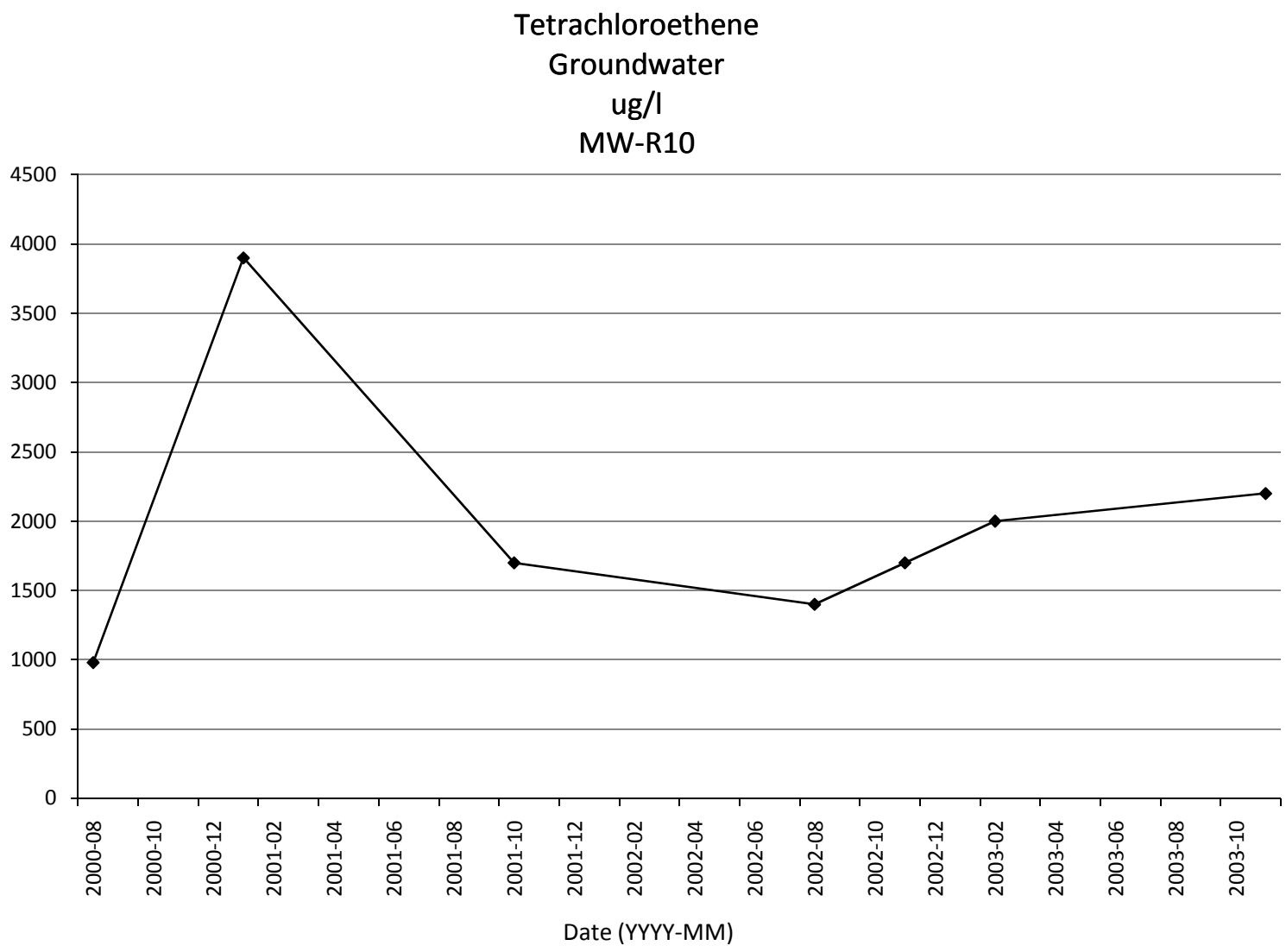
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
MW-R10
4500
4000
3500
3000
2500
2000
1500
1000
500
0
2000-08
2000-10
2000-12
2001-02
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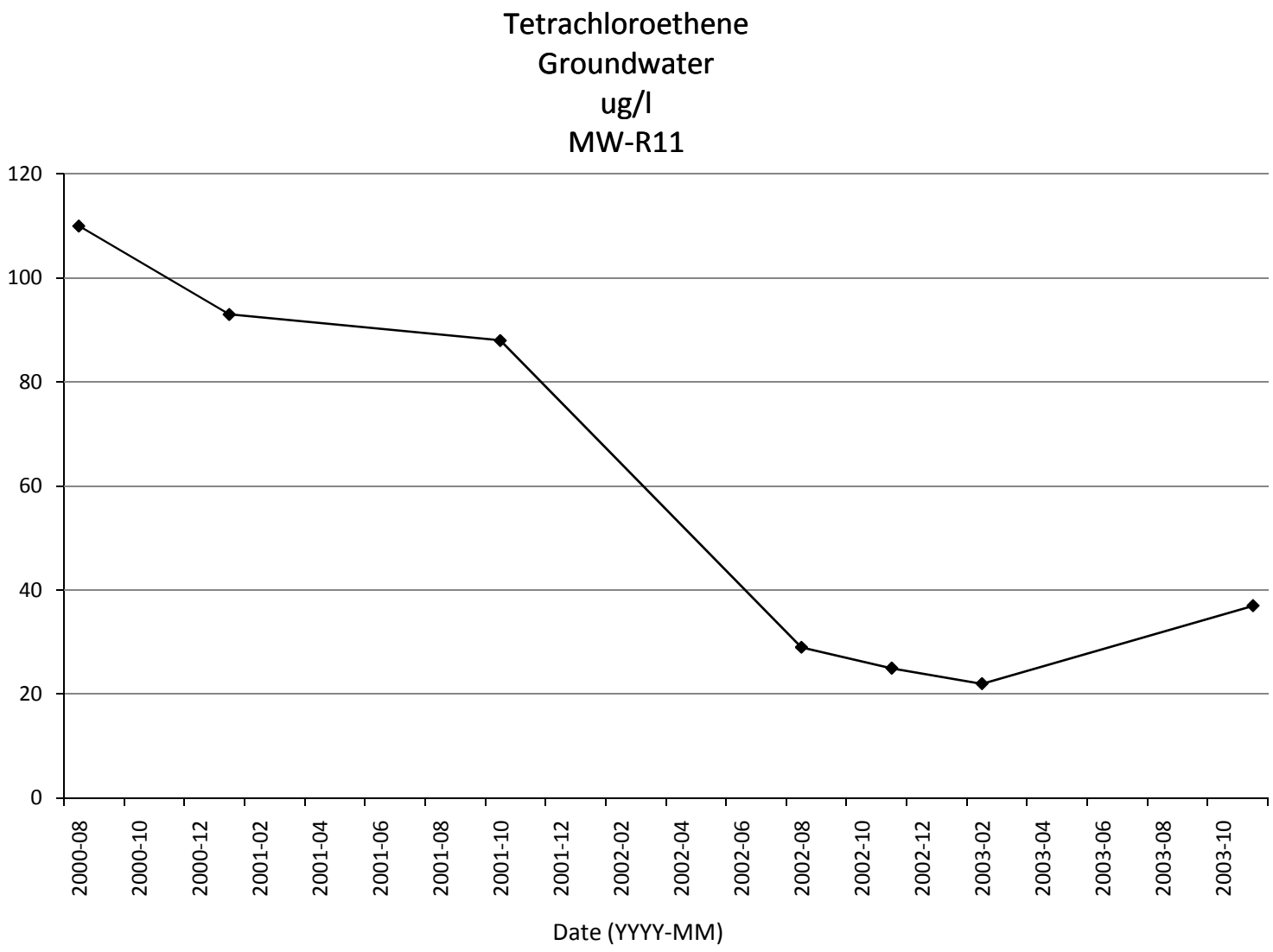
Tetrachloroethene
Groundwater
ug/l
MW-R11
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100
80
60
40
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2000-08
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2001-04
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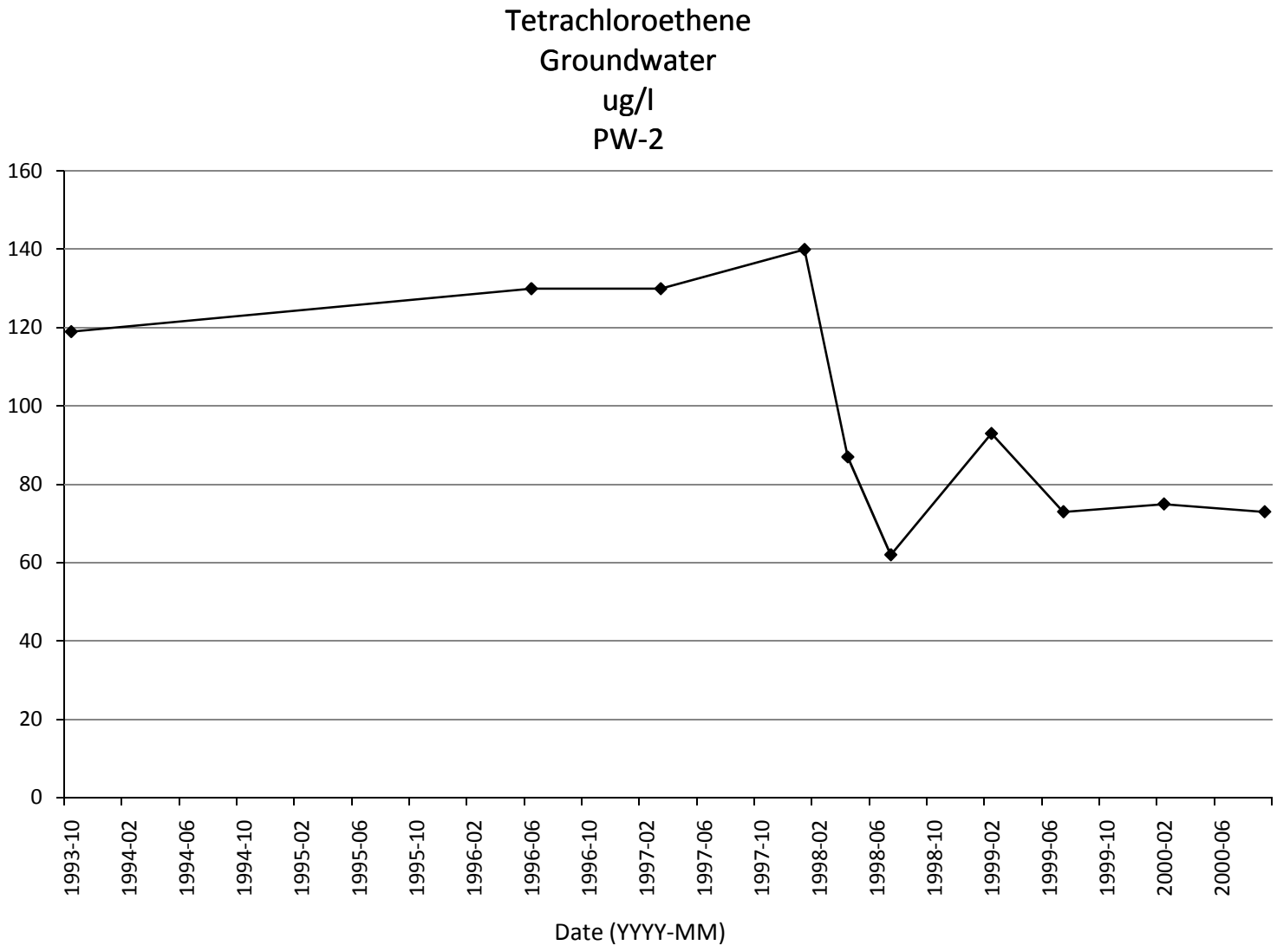
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
PW-2
160
140
120
100
80
60
40
20
0
1993-10
1994-02
1994-06
1994-10
1995-02
1995-06
1995-10
1996-02
1996-06
1996-10
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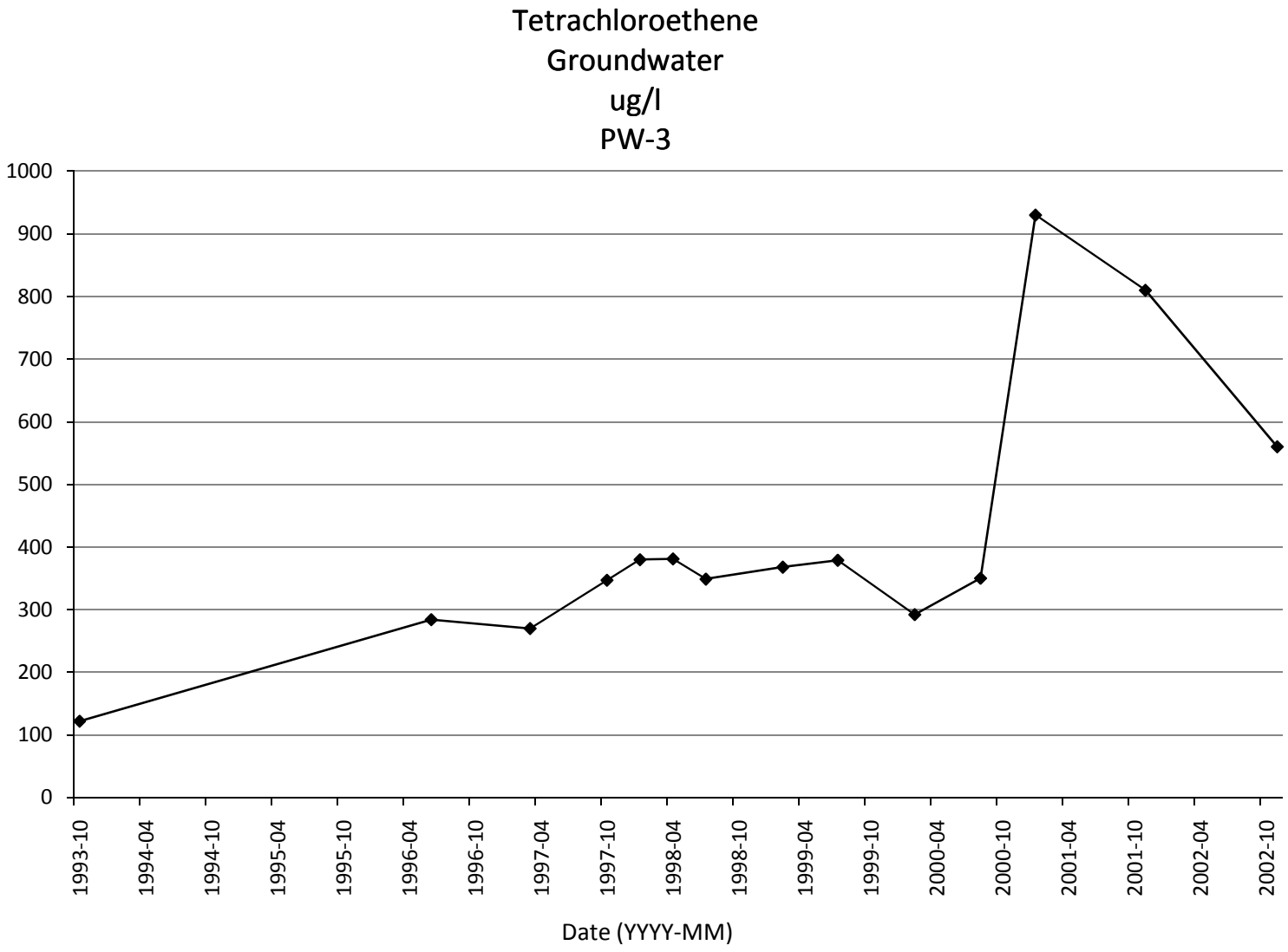
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
PW-3
1000
900
800
700
600
500
400
300
200
100
0
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1994-04
1994-10
1995-04
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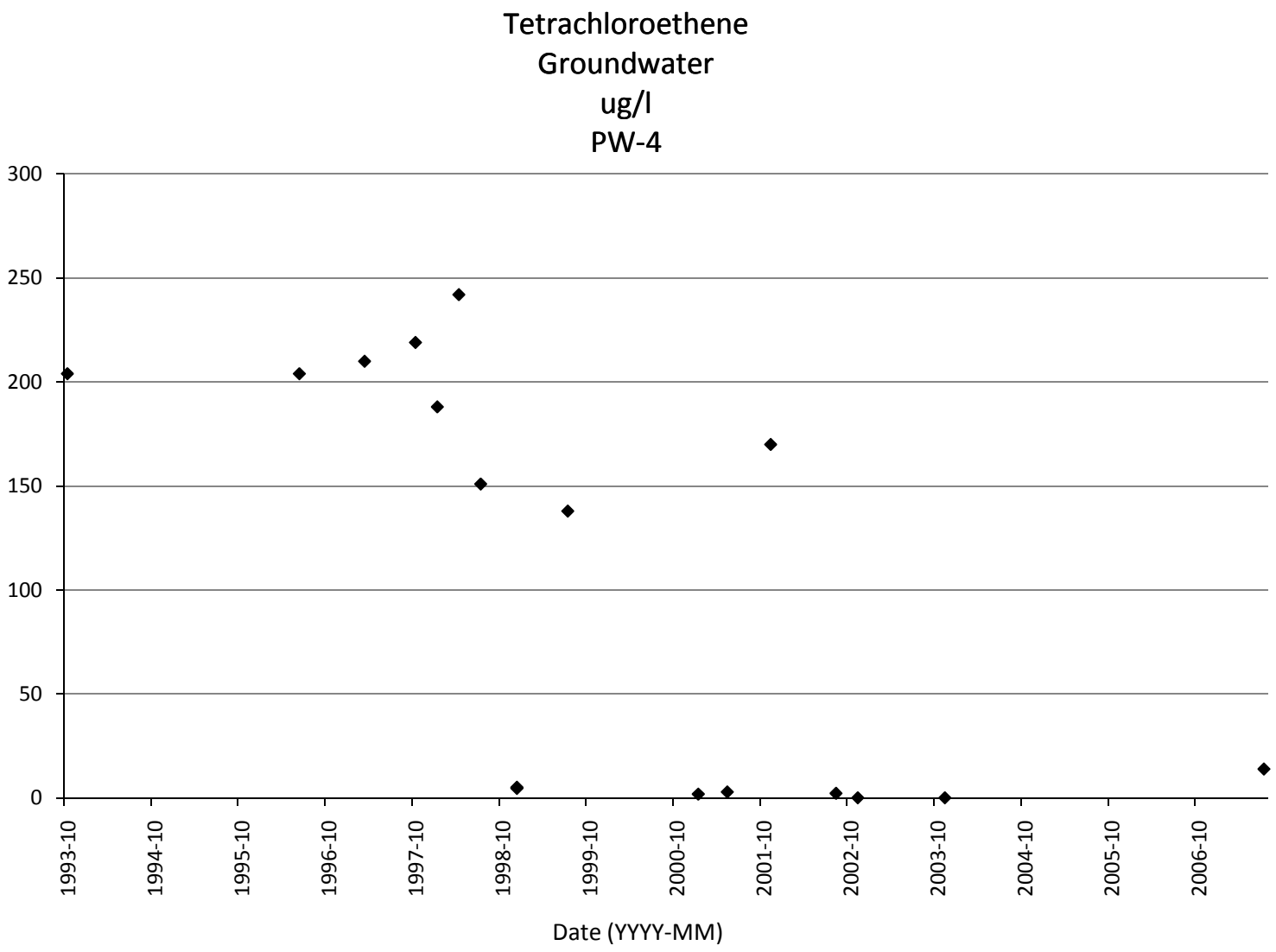
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
PW-4
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150
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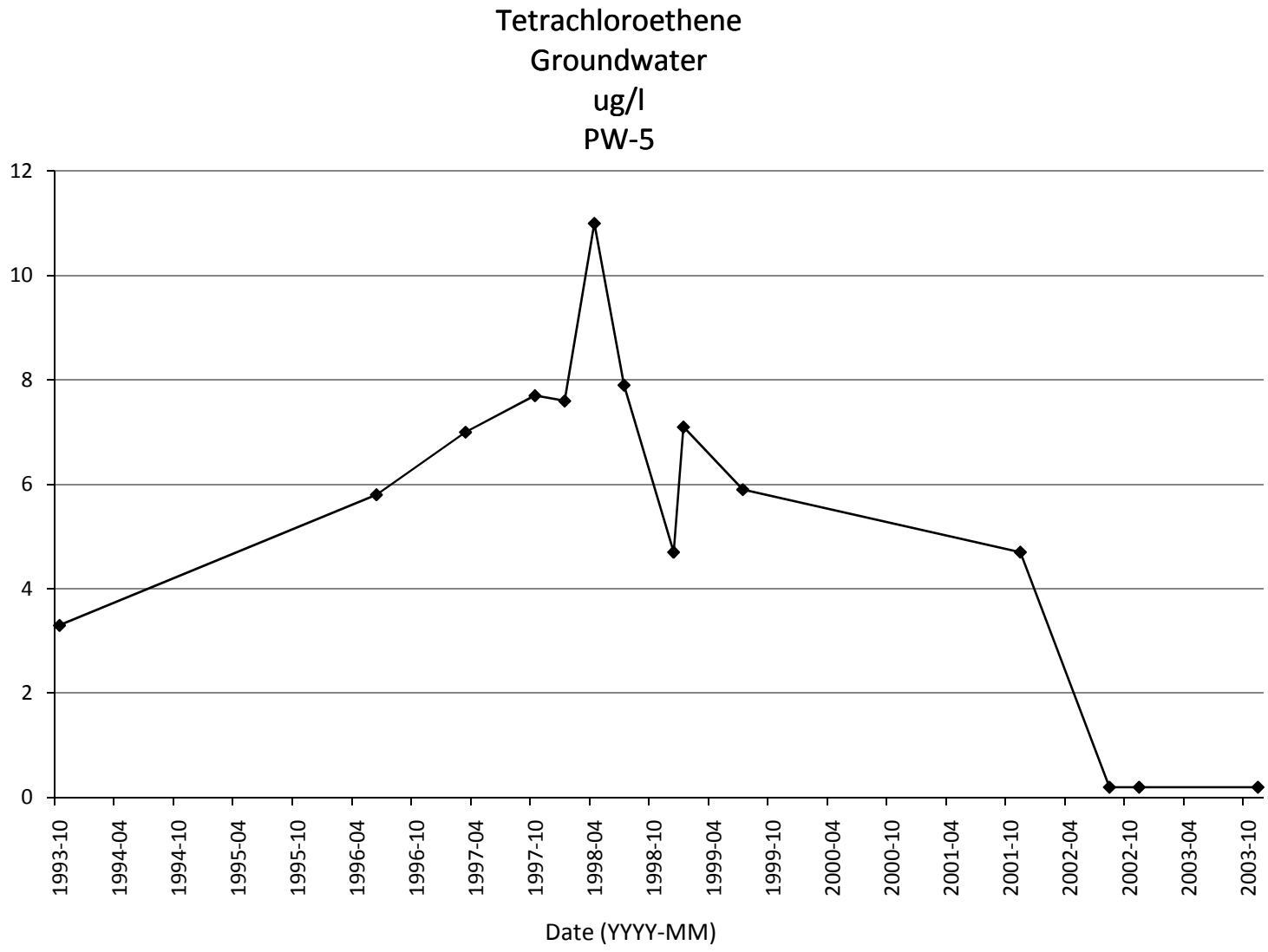
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
PW-5
12
10
8
6
4
2
0
1993-10
1994-04
1994-10
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1996-04
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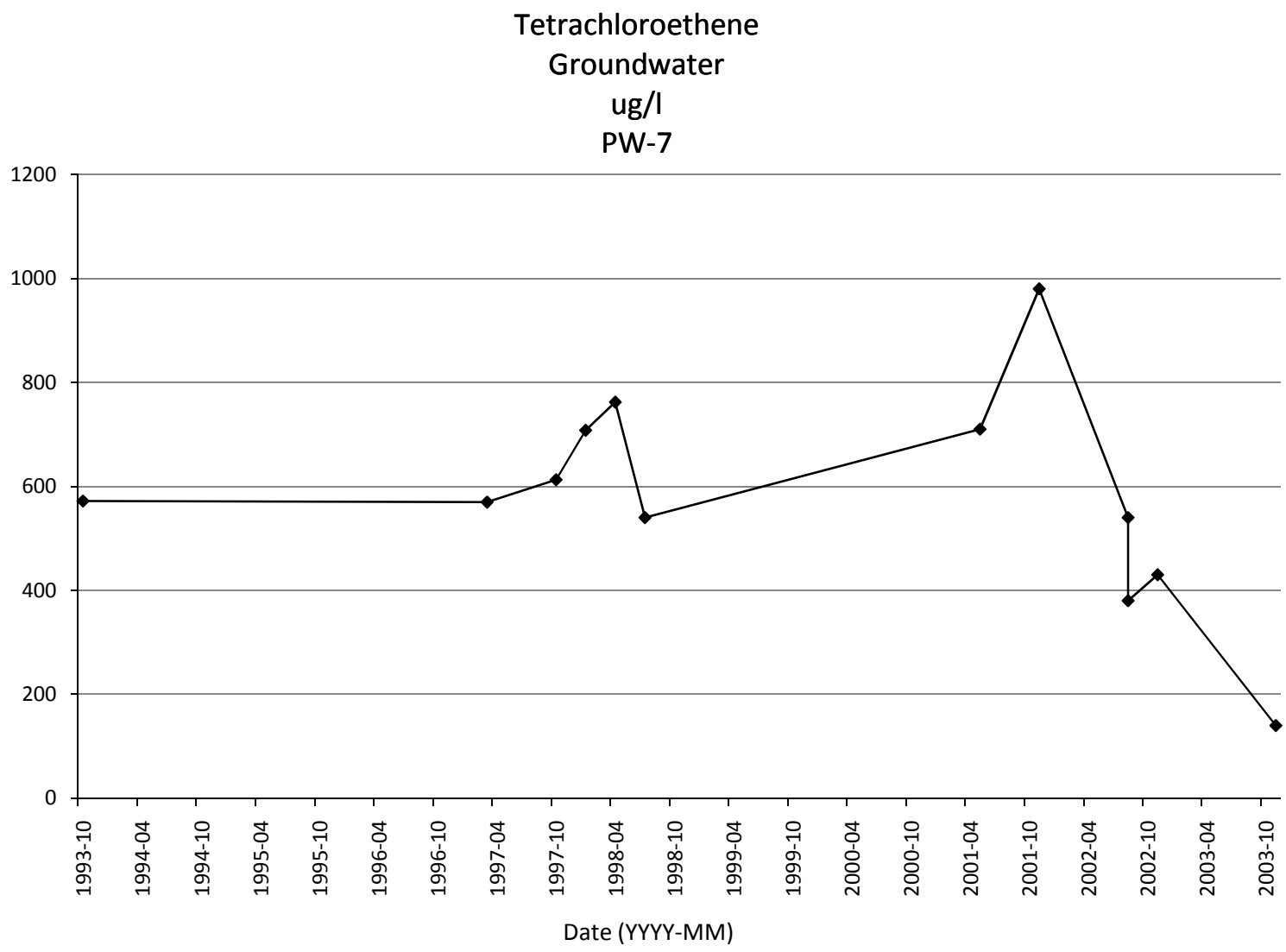
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
PW-7
1200
1000
800
600
400
200
0
1993-10
1994-04
1994-10
1995-04
1995-10
1996-04
1996-10
1997-04
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1998-04
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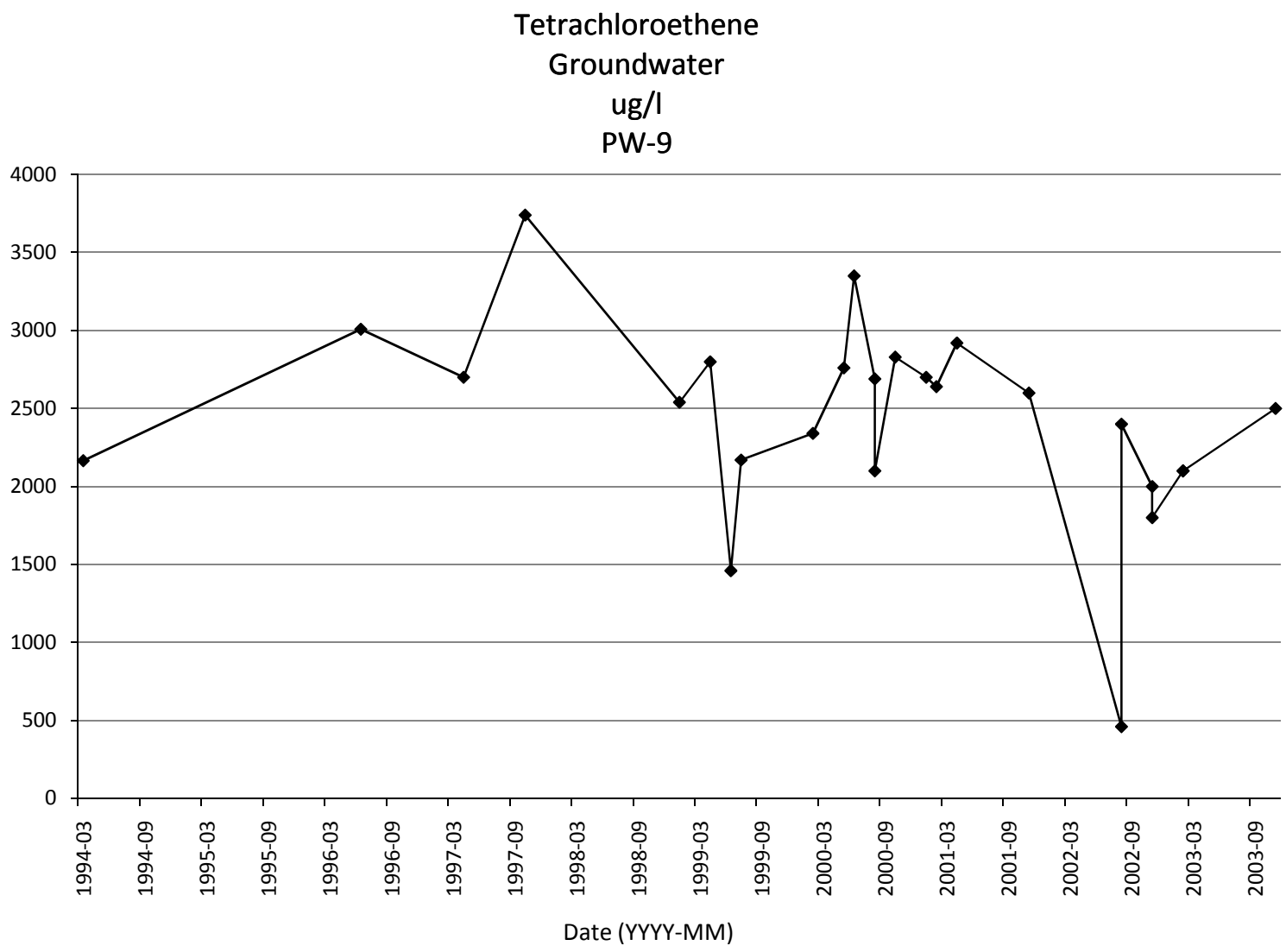
Date (YYYY-MM)


Tetrachloroethene
Groundwater
ug/l
PW-9
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3500
3000
2500
2000
1500
1000
500
0
1994-03
1994-09
1995-03
1995-09
1996-03
1996-09
1997-03
1997-09
1998-03
1998-09
1999-03
1999-09
2000-03
2000-09
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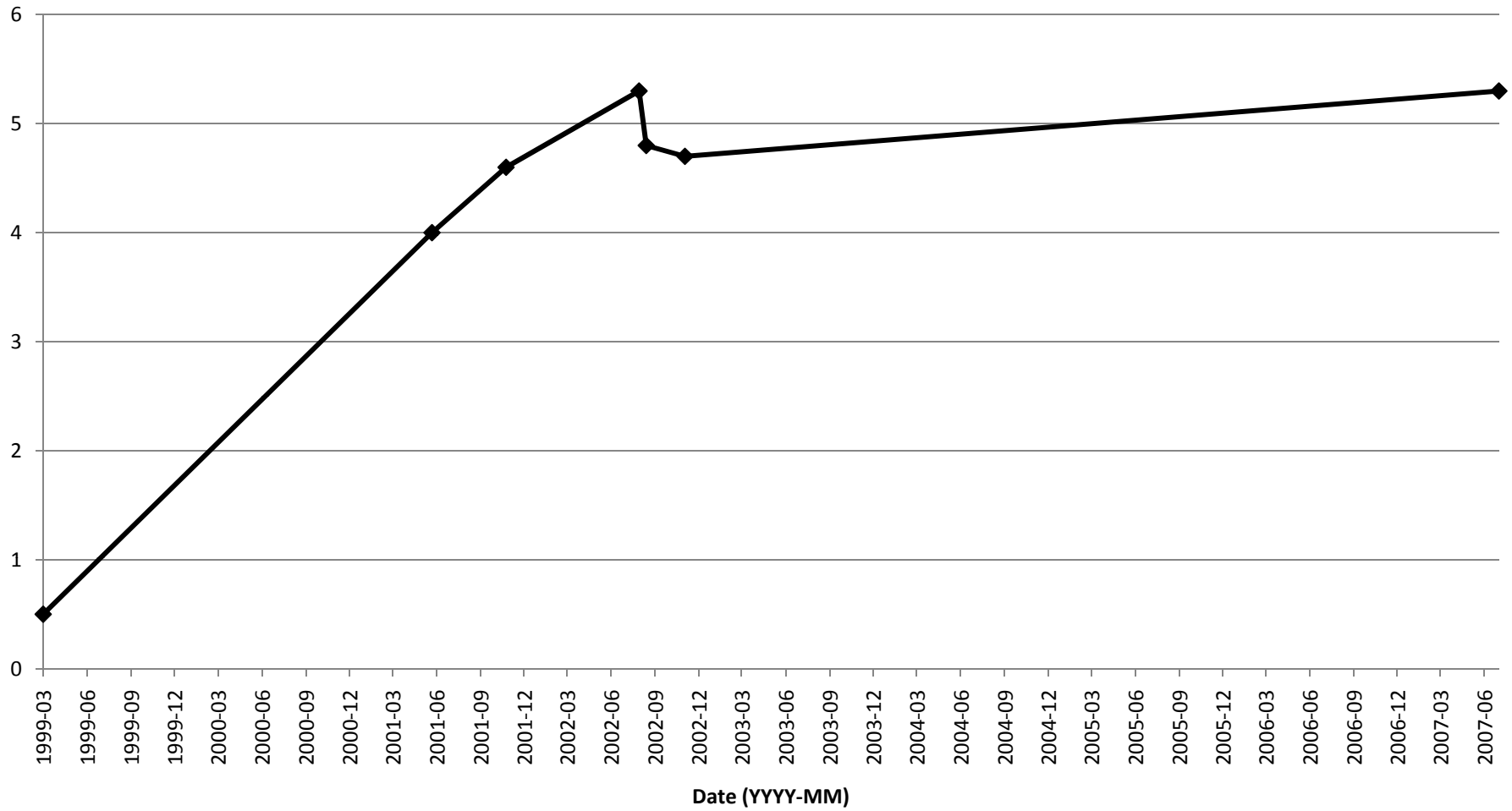
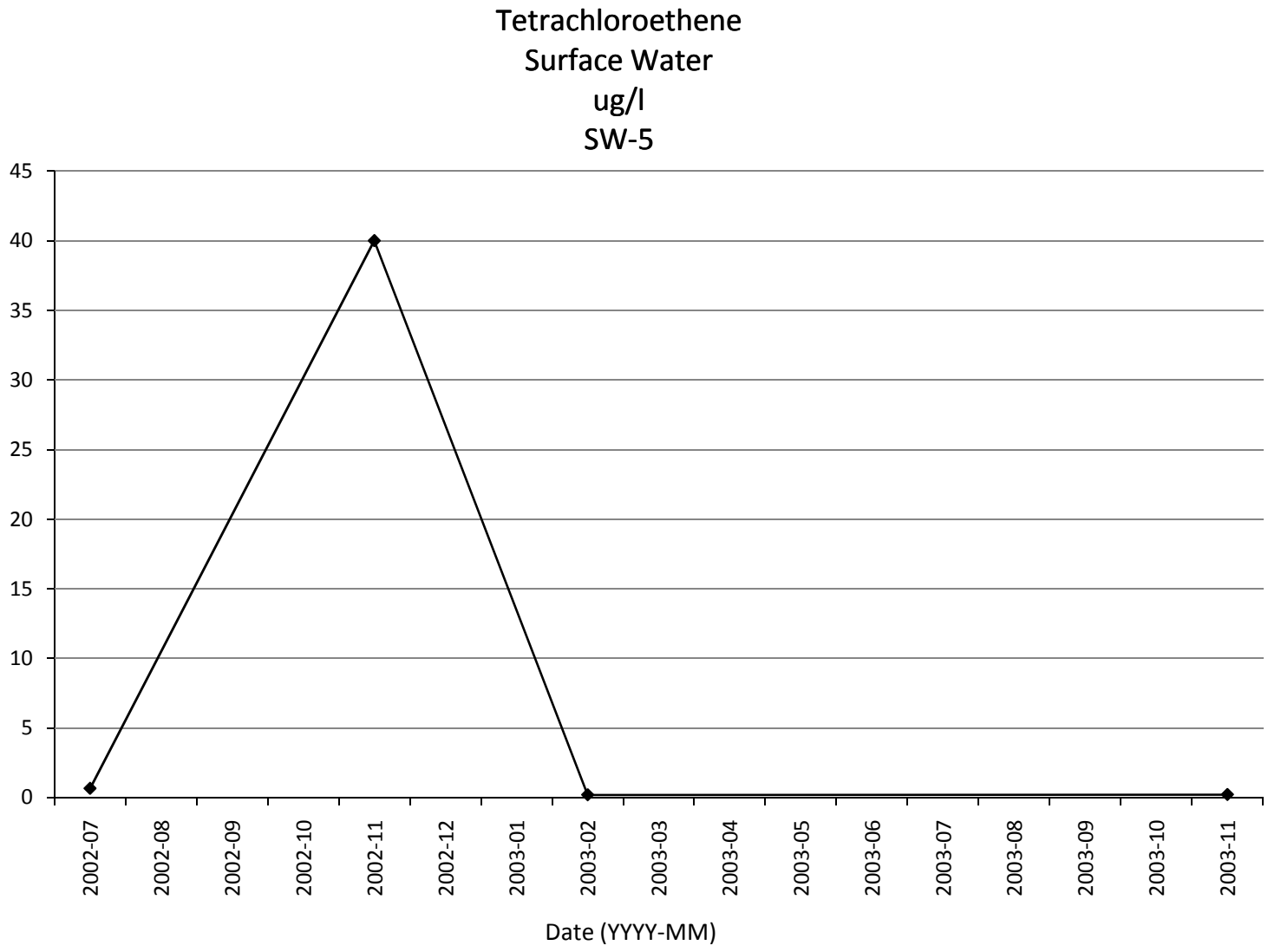
2003-03
2003-09
Date (YYYY-MM)

Tetrachloroethene
Groundwater
ug/L
PW-21




Tetrachloroethene
Surface Water
ug/l
SW-5
45
40
35
30
25
20
15
10
5
0
2002-07
2002-08
2002-09
2002-10
2002-11
2002-12
2003-01
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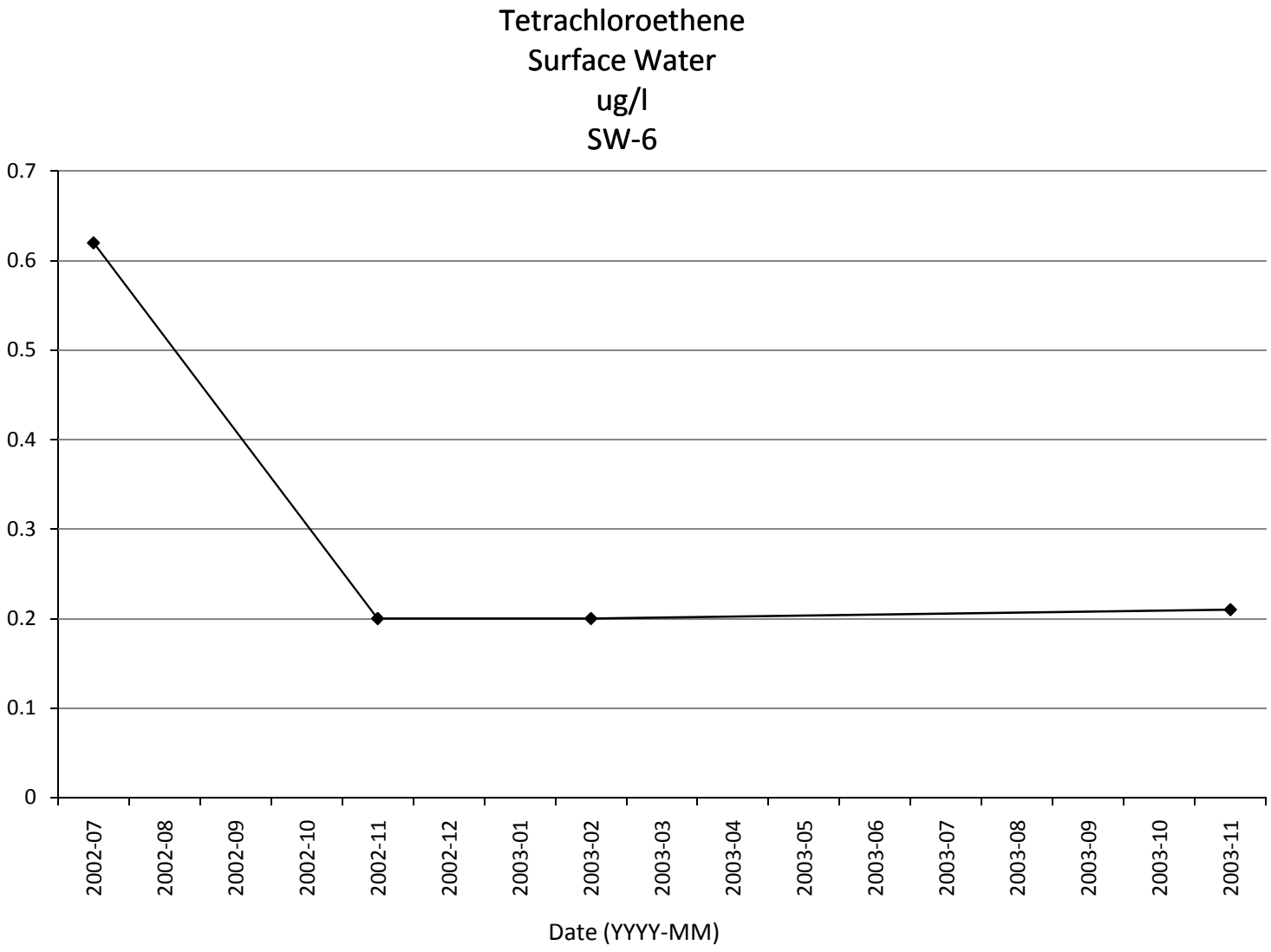
Date (YYYY-MM)


Tetrachloroethene
Surface Water
ug/l
SW-6
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0.6
0.5
0.4
0.3
0.2
0.1
0
2002-07
2002-08
2002-09
2002-10
2002-11
2002-12
2003-01
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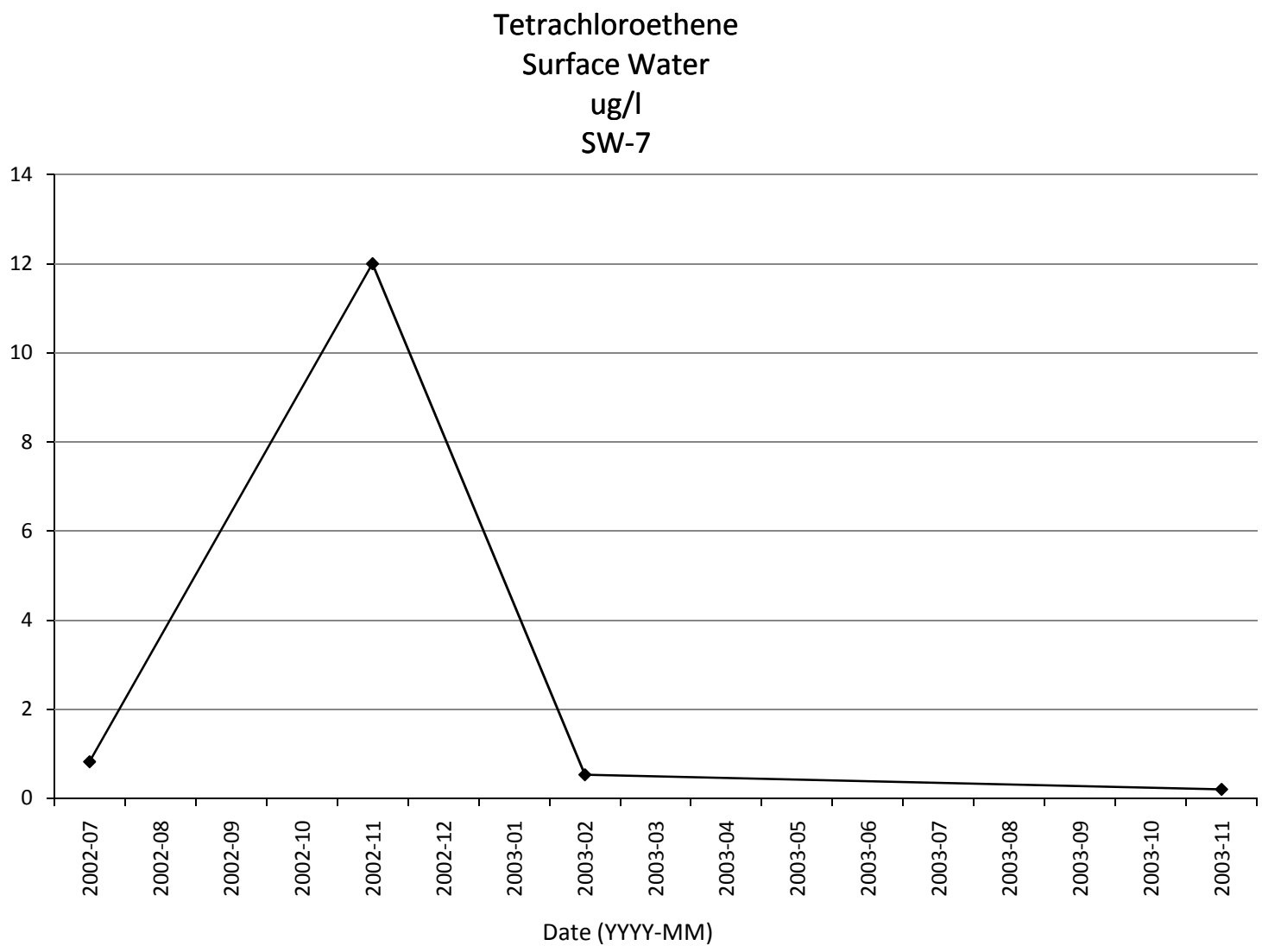
Date (YYYY-MM)


Tetrachloroethene
Surface Water
ug/l
SW-7
14
12
10
8
6
4
2
0
2002-07
2002-08
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2002-10
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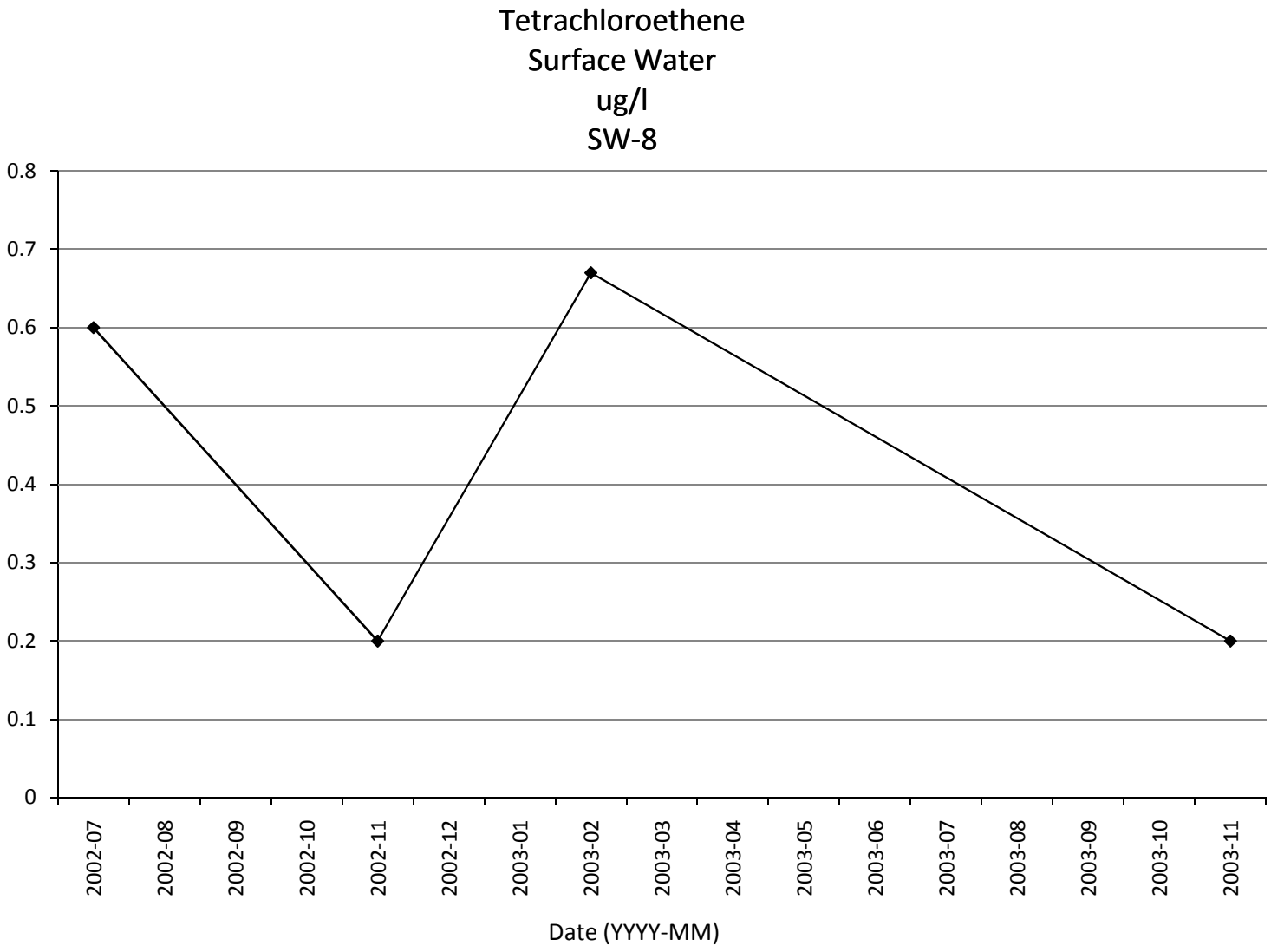
Tetrachloroethene
Surface Water
ug/l
SW-8
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
2002-07
2002-08
2002-09
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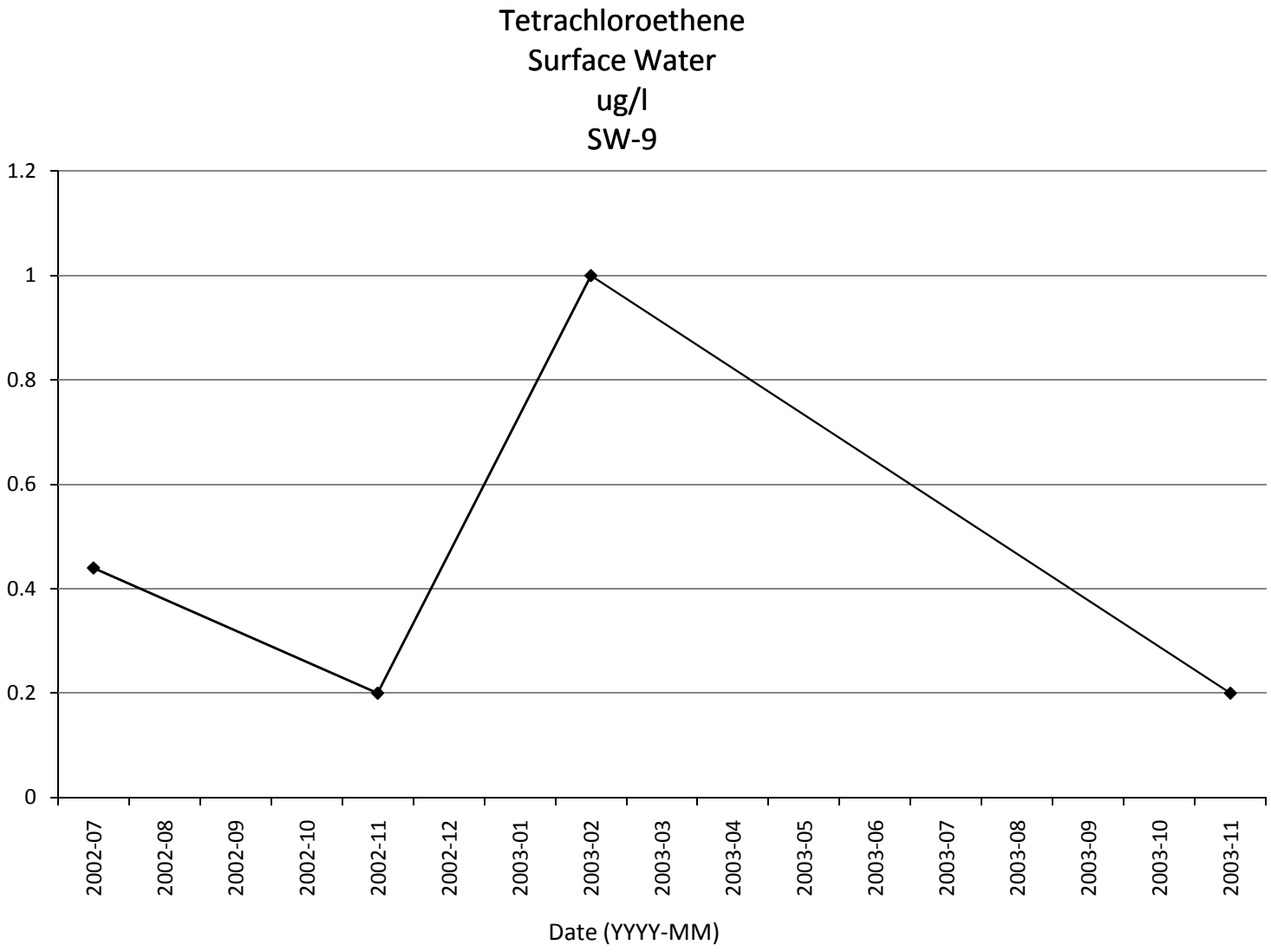
Tetrachloroethene
Surface Water
ug/l
SW-9
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1
0.8
0.6
0.4
0.2
0
2002-07
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2003-02
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2003-11
Date (YYYY-MM)

Appendix G
Baseline Risk Assessment Report

Baseline Risk Assessment to be provided at a later date under separate cover

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